Access and Affordability

Patterns of Financial Aid and Student Performance for a Cohort of Missouri College Freshmen

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Foreword

In recent years, several national and state reports have been released discussing the role and impact of student financial aid as it relates to the affordability of higher education and student participation and performance. These reports have shaped state- and institutional-level conversations about public policies, funding levels for institutional operations and student financial aid, and their effect on the participation and performance of students, particularly those who are first-generation, low-income, minority, and/or working adults.

Some of the reports that have shaped institutional- and state-level discussions about student financial aid include *Missed Opportunities – A New Look at Disadvantaged College Aspirants,* released by The Institute for Higher Education Policy in 1997, and *Straight Talk About College Costs and Prices*, released in 1998 by the National Commission on the Cost of Higher Education.

Other notable reports include the Missouri Coordinating Board for Higher Education's report of the Missouri Commission on the Affordability of Higher Education, *Toward an Affordable Future* (1999), that reported:

- There has been a dramatic shift in responsibility for financing higher education to students and their families, and this additional burden is increasingly being financed by student loans.

- College and university aspirations and public expectations of these institutions have a significant impact on the cost of higher education.

- Missourians have access to a diverse system of public and independent higher education with institutions that offer a wide range of choices in terms of tuition and fee levels.

- State-level policy makers and the public have a limited understanding of institutional pricing policies and the reasons for the increasing costs of higher education.

- No student pays the full cost of a college education. Public and independent colleges and universities subsidize the cost of higher education with different sources of revenue, and the subsidy varies by institution, but all students receive substantial subsidies.

The 22 recommendations offered by the Missouri Commission on the Affordability of Higher Education addressed issues of cost containment, state budget policy, pricing, financial access, and consumer information. Among the financial access recommendations, the commission recommended that the state coordinate student financial aid programs to increase state funding for need-based financial aid for students pursuing the first two years of postsecondary education. The guiding principles for

establishing a coordinated, need-based student financial aid program suggested by the commission resulted in the following recommendations:

- Financial aid should follow Missouri students;
- Eligible institutions should include approved two- and four-year public and independent colleges and universities, vocational, and private career schools;
- Aid awards should be at least $2,250 initially, and future increases should be linked to an appropriate index;
- An additional $1,000 could be awarded if matched by institutional funds;
- Aid should be applied to part-time students on a proportional basis;
- Aid programs should address the needs of all students; and
- The design of aid programs should minimize the amount of student debt accumulated in the first two years of postsecondary education.

The Lumina Foundation for Education has released several reports that have had an impact on state policy development regarding student financial aid programs and funding levels. Some of these reports include *Designing a State Student Grant Program: A Framework for Policy Makers*, prepared by Jerry Sheehan Davis, Vice President for Research, in September 2001. The Lumina Foundation for Education's January 2002 report, *Unequal Opportunity – Disparities in College Access Among the 50 States* by Samuel M. Kipp III, Derek V. Price, and Jill K. Wohlford, was the first national report to identify colleges and universities as being admissible and/or affordable with or without student loans.

Missouri is a participating state in the Lumina Foundation-funded Western Interstate Commission on Higher Education (WICHE) project, "Changing Direction: Integrating Higher Education Financial Aid and Financing Policy." The project, also sponsored by the State Higher Education Executive Officers (SHEEO) and the American Council on Education (ACE), provides a forum in which states exchange research, strategies, best practices, and ideas for integrating student financial aid policy and policies for financing institutional operations.

Patrick Callan of The National Center for Public Policy and Higher Education, through *Measuring Up 2000* and *Measuring Up 2002*, the state-by-state report cards, has focused attention on improving the preparation, participation, affordability, completions, benefits, and learning of students. Finally, academic scholars such as Tom Mortensen of Postsecondary Education Opportunity, Donald Heller of Pennsylvania State University, Edward P. St. John of the Indiana Education Policy Center at Indiana University, and others, continue to provide evidence through their research that institutional, state, and federal policies and funding levels for student financial aid are insufficient to meet the financial needs of the nation's postsecondary education students. This is especially true for first-generation, low-income, minority, and working adult students. Through this Lumina Foundation for Education-funded research, Missouri is contributing to the body of research and literature about the role of student financial aid in helping students complete their postsecondary education objectives.

Table of Contents

List of Tables

List of Figures

List of Appendix Tables

Summary of Findings and Policy Implications

Summary of Findings

Research on student financial aid and performance has relied heavily on national survey data. However, there is a great deal of variation between states in the financing of higher education and in student financial aid programs. This makes national averages less useful for state education policy-making. Moreover, state-level samples drawn from national surveys are typically too small to reliably draw inferences. This makes it important to develop research strategies and databases that make better use of state and institutional administrative data for financial aid research. This project makes a contribution to that agenda by developing student-level research data files from a variety of state administrative data in Missouri. The following sections summarize our findings.

I. Understanding Institutional Financial Aid

Institutional financial aid data are typically not available to state higher education agencies. For this research, student-level financial aid data were collected directly from higher education institutions and merged with various state higher education agency files. The resulting database provides a complete longitudinal record of aid and performance data for a very large cohort of Missouri freshmen, including federal, state, and institutional financial aid data, unemployment insurance (UI) wage records, and detailed data on student participation and performance at six public four-year higher education institutions in Missouri. These six institutions account for 48 percent of public four-year higher education enrollments in the state. These data were used to analyze patterns of financial aid to students and the effect of aid packages on student performance and the likelihood of graduation. Major findings are:

- Institutional financial aid is a very important source of support for low-income students in Missouri. Institutional aid made up 44 percent of total gift aid for students with family incomes less than $25,000. The vast majority of this institutional aid was not need-based.

- Gift aid is strongly and positively associated with student ACT composite scores. The positive relationship is due largely to a state merit scholarship program tied to ACT performance and institutional gift aid.

- Students who receive gift aid in their freshman year are likely to receive gift aid in subsequent years. However, the size of awards varies considerably from year-to-year: for some students, gift aid falls and for others it increases. On balance, more students lose than gain gift aid over time.

- The major source of year-to-year change in gift aid is institutional. Students are much more likely to experience a decline in institutional gift aid between their freshman and subsequent years than they are to experience a gain

- Students who receive gift aid are more likely to graduate in four or six years than students who do not receive gift aid. The same is true for work aid. However, this relationship does not hold for loan aid.

- One mechanism by which aid may raise graduation rates is by reducing a student's need to work during the school year. Students who receive gift aid have lower labor market earnings during the academic year.

- Most students graduate with debt. Sixty percent of all students who graduated within six years had loans, a proportion that rises to 82 percent for African-American graduates. Average debt for all graduates was $13,633, compared to $18,162 for African-American graduates. Part of this gap can be explained by family income differences. However, even controlling for family income, African-American graduates have higher levels of debt.

II. Who Fills Out a FAFSA?

The first step in securing financial aid for most college students involves completing a Free Application for Federal Student Aid (FAFSA) form. Data from these forms provides a measure of the demand for financial aid and provides some insight as to the characteristics of low-income students who desire to attend a higher education institution. In order to better understand the demand for financial aid and the extent to which students, particularly minority students, are making use of existing avenues of financial support, the researchers analyzed data on 53,807 Missouri FAFSA completers who planned to enroll as first-time freshmen in a Missouri public two- or four-year higher education institution in the fall of 2002. The findings for these first-time freshmen are:

- Roughly two-thirds of Missouri high school graduates fill out a FAFSA

- The vast majority of freshman FAFSA applicants are under 25 years in age (80 percent); however, seven percent are 35 or older.

- Females account for 59 percent of freshmen FAFSA applications.

- First-generation college students account for the majority (51.5 percent) of FAFSA applicants.

- FAFSA applicants come from households with higher incomes than the typical Missouri household. In Fall 1997, 49 percent of FAFSA applicants came from families with Adjusted Gross Incomes (AGI) of $35,000 or less. However, in 1997, 59 percent of all Missouri households reported AGIs of $35,000 or less.

- Most freshman in Missouri public higher education institutions fill out a FAFSA: 75.9 percent of first-time freshmen in public four-year institutions and 66.0 percent of first-time freshmen in public two-year institutions complete a FAFSA.

- Among enrolled freshman, African-American students are much more likely than white students to fill out a FAFSA. In public four year institutions, 93 percent of African-American versus 75 percent of white students fill out FAFSA's.

Policy Implications

The findings of this research have implications for a number of public policy issues related to the distribution of institutional, state, and federal student financial aid. Some of these are specific to the state of Missouri; however, many undoubtedly apply to other states' and to the federal student financial aid programs.

1. While institutional, state, and national reports are replete with discussions of concern about the cost and price of higher education, it is noteworthy that this study found that 23.5 percent of the freshmen enrolling in fall 1997 received no financial aid during their freshman year (Table A2). This suggests that the issue of cost and price of higher education, while important, may not affect all incoming freshmen.

   For those freshmen that do receive aid, the number of different combinations of student financial aid make it difficult for students and parents to know how the mix of student financial aid programs can help them finance a college education (Table A2). Institutional, state, and federal student financial aid policies and programs need to be integrated and streamlined if the distribution of financial aid is to become more efficient and understandable to students and their families, and is to be an effective strategy in promoting both access to and successful participation in higher education.

2. Institutional gift aid is important to how students are able to finance their college education. Institutional gift aid, however, is invisible to many – including policy makers. The current lack of publicly available information on institutional financial aid is especially problematic for the more than 50 percent of students who reported themselves as first generation college students (Table 14). Increasing funding for state-wide need-based programs versus institutional programs may provide first-generation students with a better understanding of financial aid that is available to them.

3. Arbitrary cut off dates for applying for financial aid and submitting the FAFSA need to be examined. For example, in Missouri only 44 percent of the FAFSA filers considered for state need-based student financial aid complete and submit the FAFSA by the March 31 state cut-off date for state student financial aid (Table 12). This cut-off date should be reconsidered in light of the 56 percent of students completing and submitting a FAFSA after that cut-off date.

4. Nearly 58 percent of those completing a FAFSA report adjusted gross incomes (AGI) of $50,000 or less compared to 72 percent of state residents reporting adjusted gross incomes of $50,000 or less (Table 15). This suggests that there may be additional middle and low-income residents who could file a FASFA and benefit

from further education. Early awareness and outreach efforts targeted to middle and low income students could increase the number and proportion of these students completing a FAFSA and potentially enrolling in one of the state's higher education institutions.

5. Slightly more than 18 percent of first-time freshman FAFSA filers are over the age of 25 (Table 13). This suggests college attendance decisions are not the exclusive domain of students enrolling directly out of high school. Older adults enrolling as freshman have different challenges and needs than recent high school graduates, and place different demands on institutions and states for course delivery, program offerings, and access to student financial aid. State public policies and institutional practices need to focus more attention on the adult student, particularly when nearly one out of five new freshmen is over the age of 25.

6. The largest proportion of freshmen (12 percent) receiving aid are awarded institutional non-need based gift aid. Gift aid is important to student success as demonstrated by its relationship to increased graduation rates and reduced time to degree completion for those students receiving gift aid (Figure 10). More freshmen lose their gift aid during their subsequent academic careers than those who receive more gift aid (Table 8). Some of this loss is a result of the academic performance criteria institutions require students to maintain to retain their non-need based gift aid. These institutional policies should be examined to ensure they are in the best interests of the student, the institution, and the state.

7. Debt accumulated from student loans is of significant concern as noted in various studies and reported in the mass media. Sixty percent of baccalaureate degree recipients form the entering freshman class of fall 1997 graduated with an average of $13,633 in loan debt (Table 10). In addition, many students who left school without a degree but were near degree completion (90 to 120 credit hours) had accumulated $10,811 of debt (Table 11). Institutional retention strategies and practices as well as retention and student information strategies promulgated by the state need to focus attention on the importance of degree completion and on students who borrow to finance their higher education. Institutions, the state, and the federal government need to work together to ensure that students are sufficiently financially literate to understand how the accumulation of so much debt, particularly without completing a degree, can lead to financial hardships in the future for these students.

8. Race and income differences have well documented influences on student outcomes. While a higher proportion of African-American students complete a FAFSA than white students (Figure 18), African-American students accumulate more loan debt upon graduation than white students - $18,162 for African-Americans compared to $13,046 for white students (Table 10). African-American students receive 14 percent of the gift aid disbursed by institutions while comprising only 7.5 percent of student enrollments. White students receive nearly 79 percent of all gift aid but comprise slightly more than 86 percent of enrolled students.

Low-income students (incomes less than $25,000) comprised just over 19 percent of the fall 1997 freshman class but received 29.5 percent of all gift aid (Table 3A) These low-income students also accumulated an average debt of $17,452 by the time they graduated (Table 10). Although middle income students (incomes of $25,000 but less than $75,000) comprised slightly more than 37 percent of the fall 1997 freshmen and received nearly 42 percent of all gift aid distributed to fall 1997 freshmen (Table 3A) had accumulated debt of $18,585 by the time they graduated.

These findings suggest that access to and success in higher education is not an issue of race as much as it is an economic issue. Institutional, state, and federal student financial aid policies need to be integrated and connected to ensure that both low- and middle-income students have access to non-loan grants. Throughout the findings of this study, it is clear that middle-income students face many of the same challenges in financing their higher education as low-income students do.

9. Unfortunately, this study is not able to say anything about students who do not complete a FAFSA or enroll in a public college or university. Joint research initiatives by states departments of elementary and secondary education and higher education are needed to help each learn more about who are the students that, for what ever reason, do not go on to some further education and training after high school. Missouri is essentially a no growth state with enrollments in higher education not increasing as they have and are project to in other states. For example, the participating schools in this study only increased enrollments by 14 percent between fall 1997 and fall 2003 (Tables B1 and B2). If the state's system of higher education is to increase the level of educational attainment of Missouri citizens, the state must put in place policies and strategies to promote increased participation in higher education.

10. This study and the research presented in this report demonstrate limited causal relationships between the impact of various forms of student financial aid on access to and successful participation in higher education and selected student outcomes. It is essential, however, that this kind of research be continued and broadened to include more types of institutions within Missouri's system of higher education to more fully explain how student financial aid impacts student participation and the outcomes of higher education. Only through research involving institutional, state, and federal financial aid data can institutions, the state, and the federal government learn about where and how financial aid policies may be working at cross purposes, and how student aid programs might be better integrated and aligned to best meet the financial needs of students. Such research is vital to knowing the role student financial aid has in financing higher education to ensure that financing policies related to state support for higher education, institutional tuition rates, and financial aid are better aligned to ensure that all students have financial access to postsecondary education.

Section I: Introduction

Since the early 1970s, college prices have increased faster than inflation and during this same period the average income for families in the lowest income quintile showed a slight decline. These two trends have created considerable concern among families about paying for a college education. Adding to these concerns is the reduced purchasing power of the federal Pell grant. In 1979-1980, the maximum Pell grant covered 77 percent of the average tuition costs, fees, and on-campus room and board at a public four-year college. By 2002-2003, the maximum grant covered only 41 percent of these prices (King, 2003). From 1975 to 1985, federal funding for higher education decreased by 27 percent while from 1985 to 2000, it increased by 21 percent (National Center for Education Statistics, 2000a). In addition, both public and private institutions have experienced a decrease in the percentage of their current funding from government sources, and as a result have come to rely increasingly on tuition revenue to compensate for the decline in funding. The dynamics of college costs, higher education funding at both the state and federal level, and declining family income are creating an increasing challenge for individuals to continue their education beyond high school.

What effects have these changes had on patterns of financial aid and degree completion? Research on student financial aid and performance has relied heavily on national survey data. But the long time lags between the collection and release of these national data limit their usefulness to current policy debates. While state administrative data are timelier and offer many advantages over national data, most states' administrative data lack institutional financial aid data. In order to address this limitation, the researchers constructed a longitudinal student data file from federal, state, and institutional financial aid data, unemployment insurance wage records, and detailed data on student higher education performance at six public four-year higher education institutions in Missouri. These six institutions account for 48 percent of public four-year higher education enrollments in the state. These data were used to analyze patterns of financial aid to students and the effect of aid packages on student performance, and they provide a very useful complement to research based on national survey data.

Literature Review

There is a large empirical literature on the effects of tuition and financial aid on student enrollment, academic progress, and degree completion. One strand of this literature has examined the effect of tuition on student enrollment. Often cited surveys of this literature are Leslie and Brinkman (1987) and Heller (1997). Not surprisingly, researchers have generally found that the demand curve for higher education has a negative slope – as price goes up, enrollment or applications go down. There is some variation among studies in the estimated price response and most of the surveyed literature is based on grouped data. These studies generally find that the demand curve is fairly inelastic, e.g., a 10 percent increase in tuition reduces enrollment by less than 10 percent.

More relevant for this report is whether there are differences between high- and low-income students in enrollment or completion in response to tuition increases. Other

things being equal, one might expect a different response from low-income families. Even if the payoff to higher education is the same for students from high- and low-income families, the latter may lack the ability to finance investments in higher education. Thus, human capital theorists would describe these low-income students as "credit constrained." Heller (1997) concludes from his survey of the literature that the tuition responsiveness of low-income students is indeed greater. He also finds that student financial aid generally raises the likelihood of college attendance for low-income students. More recent work by Cameron and Heckman (2001) finds less evidence of credit constraints. The problem, according to these researchers, is that high income families make substantial investments in the education of their children. As a result of these investments, children from higher income families tend to have cognitive skills and affective behaviors that make them more "college ready." The smaller investment low income families make over the lifetime of their children may be a factor contributing to low participation in college by low income students. Cameron and Heckman find little evidence that "credit constraints" can account for racial and ethnic gaps in college attendance.

On the question of the distribution and effect of institutional financial aid, the research literature is much slimmer, largely because detailed institutional financial aid data are not available in most national longitudinal student data files (e.g., High School and Beyond, National Longitudinal Study of the Class of Year 1972, National Educational Longitudinal Study of 1988), or in state administrative data. Further, variables that might affect the tendency to enroll or succeed in college (e.g., cognitive skills, motivation) may be correlated with the receipt of financial aid. In some studies the controls for student ability are limited or absent. In principle, "random assignment" experimental studies might be conducted to obtain an estimate of the effect of aid. For example, where an applicant pool of equally worthy and talented students exceeds the available scholarship funds, it would be possible, hypothetically at least, to conduct a lottery to distribute the aid and analyze the behavior of recipients and non-recipients. However, perhaps due largely to ethical concerns, no random assignment studies of financial aid were found. This has led some economists to search for "natural experiments" in which administrative quirks or other environmental phenomena lead some subgroups of approximately equally able and worthy students to get more financial aid than others.[1] The findings in this newer econometric literature with respect to financial aid are mixed (Linsenmeier, Rosen, and Rouse, 2002; Kane, 2003; Bettinger, 2004).

A recent paper by Turner (2004) highlights the divergence between higher education attendance and degree completion. Unfortunately, many discussions of "access" fail to note this very important distinction. Turner shows that while the probability of higher education attendance has increased substantially since the 1970s, the probability of baccalaureate degree completion has increased at a much slower rate. For example, in 1970, among high school graduates aged 23, 23 percent had completed a baccalaureate degree and 51 percent attended college for some period of time following

[1] Examples of such studies include Van der Klaauw (2002), Linsenmeier, Rosen, and Rouse (2002), Kane (2003).

graduation. By 1999, the college attendance rate had grown substantially to 67 percent while the percent completing baccalaureate degrees only grew to 24 percent. More students do, in fact, earn baccalaureate degrees beyond age 23, and the age at degree completion is rising. Turner's work highlights the importance of analyzing the effect of student financial aid not only on higher education attendance, but also on retention and degree completion.

While both institutional and survey data are relied upon in this research literature, perhaps the most widely used is the National Postsecondary Student Aid Study (NPSAS).[2] NPSAS-based studies of institutional student financial aid include U.S. Department of Education (2003), King (2002), and Davis (2003). NPSAS is unique in that it includes not only student-level data on academic success, but also detailed freshman year data on financial aid, including institutional financial aid. While NPSAS has been a valuable tool for research on student aid and higher education performance, this project, based on longitudinal student data from institutions, can make a number of useful contributions to the research literature and policy discussion beyond those provided by NPSAS.

First, the NPSAS survey is designed to draw a nationally representative sample of roughly 12,000 postsecondary students (the longitudinal file analyzed for this study is only one-half this size). However, the process of sampling introduces sampling error. This is particularly problematic when conducting disaggregated analysis by state or particular types of institutions (e.g., selective four-year). By contrast, administrative institutional and financial aid data include the entire universe of students at the participating institutions. Of course, the tradeoff is that while Missouri's administrative data in this study are representative of Missouri students, they may not be as representative of students in other states.

A second factor is timeliness. The NPSAS has been conducted at five-year intervals, with the most recent surveys completed in 1995-1996 and 1999-2000. There is a relatively long period of time, however, before the data are released and the issuance of reports on higher education topics. For example, the National Center for Education Statistics only recently published a report on institutional financial aid based on the 1995-1996 NPSAS (U. S. Department of Education, 2003). However, as is well known, tuition rates have increased sharply since the mid-1990s. Patterns of student aid from the mid-1990s may provide an outdated statistical portrait of the current situation faced by students. By contrast, state administrative data are available for analysis in a much timelier manner.

Finally, longitudinal institutional data offer important advantages in studying the dynamics of financial aid. While the base (freshman) year financial aid data in NPSAS are extensive, relatively little financial aid data are collected beyond the freshman year, a problem noted by researchers who have used these data (Heller, 2003). Most studies

[2] The base year survey of 12,000 students comprises NPSAS, and a smaller follow up survey of a subset of these students is called the Beginning Post-Secondary Survey (BPS). For simplicity, we refer to both the base-year and longitudinal data as NPSAS.

using state administrative data lack data on institutional merit aid (Bettinger, 2004). By contrast, data collected directly from institutions provide accurate information on the level and types of financial aid received each year that a student is enrolled. Building up such a database, in effect, permits states to "follow the mobile student" as recommended in a recent report (Ewell, Schild, and Paulson, 2003) and also provides insights on the use of both need- and merit-based aid by institutions.

Missouri Longitudinal Database

The longitudinal dataset used in this research project was constructed using data from the Enhanced Missouri Student Achievement Study (EMSAS), the Free Application for Federal Student Aid (FAFSA), student financial aid data from the participating institutions, and Unemployment Insurance (UI) wage record files. The institutional financial aid data were requested from the participating institutions and merged with existing data specifically for this research project. The EMSAS data are student-level data on fall enrollment, term-by-term academic progress, and student degree completion. The EMSAS data also include information on student demographics and academic performance in high school. The Missouri Department of Higher Education (MDHE) collects these data each year from Missouri's 33 public two- and four-year higher education institutions. The FAFSA, collected by the Missouri Department of Higher Education and used for the administration of the state's grant and scholarship programs, provides family income and other demographic data on students who apply for most types of financial aid. The student financial aid data represent all of the federal, state, and institutional financial aid that students received at the institutions participating in this study (for details see Appendix Table A1). For a listing of the combinations of student financial aid packages that make research on student financial aid difficult and complex, see Appendix Table A2.

The process of constructing the longitudinal dataset began with all of the students from Missouri high schools who were enrolled as first-time freshmen in fall 1997 in one of the six public four-year institutions participating in this research project. The participating institutions are Missouri Western State College, Southeast Missouri State University, and the University of Missouri – Columbia, University of Missouri – Kansas City, University of Missouri – Rolla, and University of Missouri – St. Louis.[3] These 6,375 first-time students were tracked from their freshman year in 1997 through the 2002-2003 academic year to determine the number of credit hours completed, cumulative grade point average, degrees received over that time period, and earnings extracted from the UI data base.

[3] While data on out-of-state students are available, they were excluded from this project because the state public policy questions surrounding access and affordability of public higher education are focused on students from Missouri and not from other states. For this report the focus was only on four-year public institutions that became cooperating institutions by submitting institutional data. Only one community college provided data in the current phase of this project. Because of the limited community college data, this analysis was restricted to four-year institutions. The intention is to include more community colleges in future research.

Table 1 presents data on the six Missouri institutions that participated in this study (details are in Appendix B). Missouri Western State College, an open enrollment baccalaureate degree-granting institution, located northeast of Kansas City, draws students from the northeast and north central part of the state, and also enrolls students from Kansas. Southeast Missouri State University, a moderately selective baccalaureate and master's degree-granting institution, is located in Cape Girardeau in the Bootheel region of Missouri. Students in the southeastern and south central regions attend classes at Southeast Missouri State University. The University of Missouri system consists of four selective enrollment doctoral degree-granting and research institutions. The main campus is located in Columbia; the others are located in Kansas City, St. Louis, and Rolla.

The University of Missouri – Columbia campus is centrally located and attracts students from across the state. A Doctoral Research University – Extensive and offering a large number of undergraduate programs, the Columbia campus provides education to a number of students seeking undergraduate and post-baccalaureate degrees. The University of Missouri – Kansas City and the University of Missouri – St. Louis campuses serve the two large population centers in Missouri. The University of Missouri – Rolla, located along the I-44 corridor between St. Louis and Joplin, has long been recognized as a top engineering school and, as such, draws top high school graduates from across the state and region.

With the diversity in both location and mission, the six institutions enroll a representative cross-section of Missouri public higher education students. These participating intuitions account for 48 percent of public four year higher education enrollments in the state. There are seven public four-year institutions in Missouri that did not participate in this study. A comparison between first time freshmen enrolled in participating institutions and first time freshmen enrolled in non-participating public four-year institutions is presented in Appendix Table C3. The demographic and socioeconomic characteristics of participant and non-participant institutions are very similar. However, since the participant sample includes several selective institutions, the ACT and high-school rank are somewhat higher than in the non-participant group.

Table 1: Characteristics of Missouri Public Four-Year Participating Institutions

Institution	Carnegie Classification	2003-2004 In-state Undergraduate FTE	1996 Cohort Six-Year Graduation Rate[a]	2003-2004 Tuition and Fees[b]
Missouri Western State College	Baccalaureate Colleges-General	3,657	28.8	$4,464
Southeast Missouri State University	Master's Colleges and Universities I	6,064	49.9	$4,575
Univ. of Missouri – Columbia	Doctoral Research University - Extensive	15,957	65.1	$6,558
Univ. of Missouri – Kansas City	Doctoral Research University - Intensive	4,566	45.1	$6,725
Univ. of Missouri – Rolla	Doctoral Research University - Intensive	3,010	55.3	$6,839
Univ. of Missouri – St. Louis	Doctoral Research University - Intensive	7,217	36.1	$6,866

[a] Graduating from the student's home institution
[b] Costs reflect a typical full-time undergraduate student taking 30 hours per year.
Source: NCES Graduation Rate Survey.

Figures 1 and 2 present data on in-state tuition and in-state undergraduate FTE enrollment trends for the six participating institutions. Undergraduate in-state tuition and fees at the four University of Missouri campuses are nearly identical and roughly 50 to 70 percent higher than at the two regional institutions. As with many higher education institutions, in-state tuition rose continually during the late 1990s with a sharp acceleration over the last several years, largely in response to state budget withholdings and reductions in core appropriations. In spite of the tuition increases, in-state undergraduate FTE enrollment increased sharply at the University of Missouri – Columbia, the University of Missouri – Kansas City, and at Southeast Missouri State University. Enrollment was relatively flat at the three other institutions.

Figure 1: In-State Undergraduate Tuition and Fees, Based on 30 Credit Hours per Year, for Participating Institutions

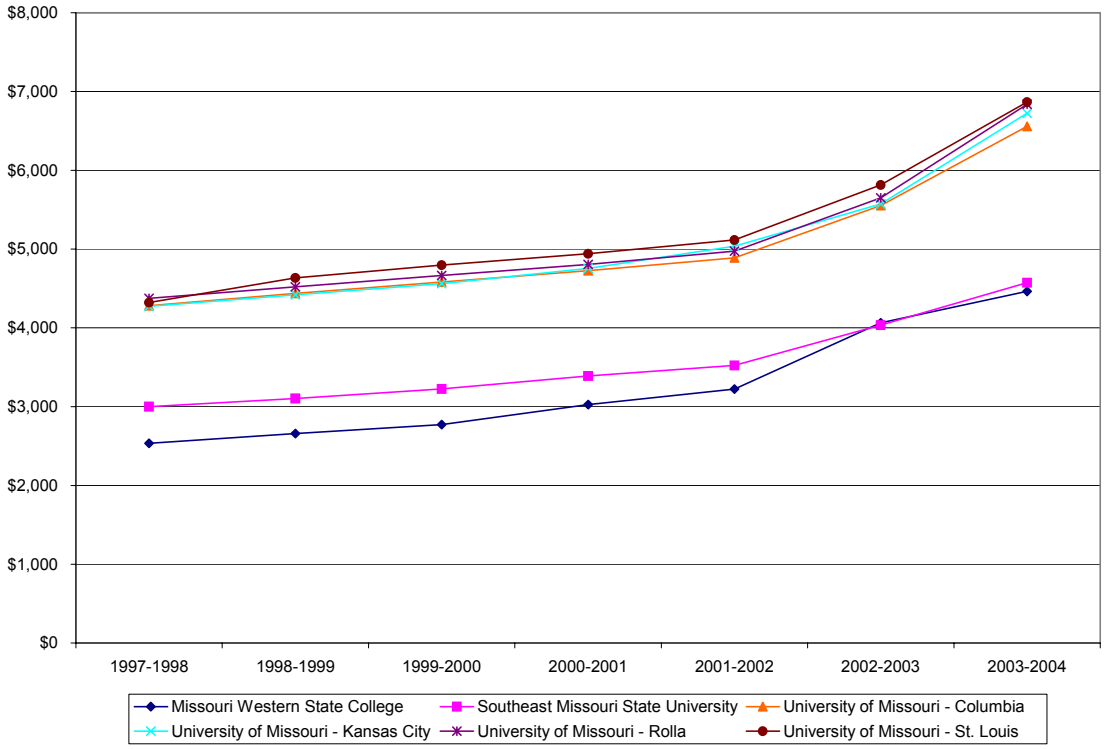
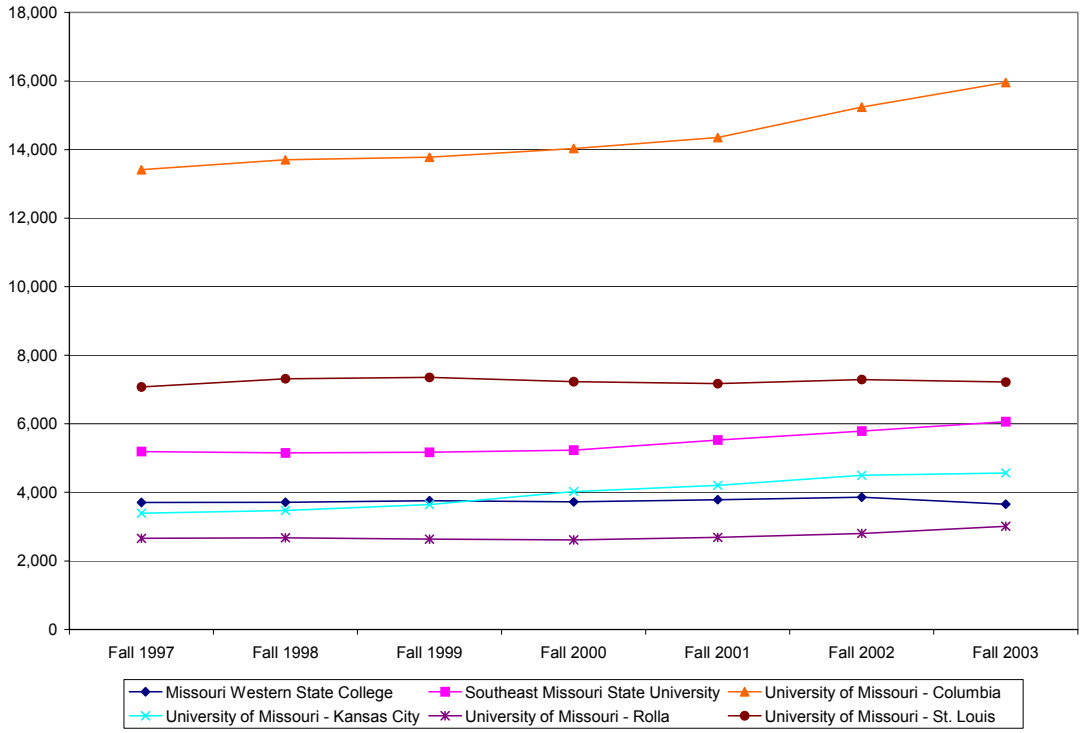


Figure 2: In-State Undergraduate Full-Time Equivalent Enrollment for Participating Institutions



Finally, since NPSAS plays such an important role in higher education research, it is useful to compare the longitudinal sample with NPSAS. Table 2 provides descriptive statistics comparing financial aid for base-year freshmen (1997-1998) with average freshmen in the 1995-1996 NPSAS. In the six participating institutions, 53 percent of students received institutional aid, compared to just 23 percent in NPSAS. The average aid award in Missouri schools, in dollars and as a percent of tuition, was comparable to NPSAS. These data suggest that, as compared to the NPSAS sample, relatively more aid passes through institutions in Missouri than in institutions in other states. This is consistent with Heller's (2003) finding that there is wide variation among the states in the magnitude of institutional financial aid awarded.

Table 2: Comparison of Institutional Financial Aid for Public Higher Education Students in 1995-96 National Postsecondary Student Aid Study (NPSAS) and Institutions Participating in the Longitudinal Study[a]

	Missouri Sample (1997-1998)			NPSAS Public Higher Education Sample (Four-Year Institutions, 1995-1996)		
	Percent Receiving Institutional Gift Aid	Average Amount of Institutional Gift Aid	Institutional Gift Aid as Percent of Tuition	Percent Receiving Institutional Gift Aid	Average Amount of Institutional Gift Aid	Institutional Gift Aid as Percent of Tuition
All Schools	53.3%	$2,407	74.6%	23.8%	$2,501	76.6%
Less Selective	35.0%	$2,059	83.7%	23.2%	$2,211	75.0%
Very Selective	64.0%	$2,519	69.3%	25.6%	$3,372	81.2%

[a] Data are for first-time, full-time freshmen only. The total Missouri sample is 5,879 students from the six four-year participating institutions in the longitudinal student data set. NPSAS data are from the U. S. Department of Education (2003).

Section II: Patterns of Institutional and Non-Institutional Financial Aid

Income

Figure 3 and Table 3 address who receives institutional and non-institutional financial aid and the extent to which need-based aid reaches poor students. Students are grouped by family income into four broad classes: income less than $25,000, income of $25,000 to $74,999, income of $75,000 or higher, and students with no FAFSA.[4]

Students from families with incomes of $25,000 or less (1997 dollars) received $3,046 on average in gift aid.[5] Interestingly, roughly half of this gift aid was not need-based. In addition, these low-income students received on average $1,556 in loan aid, roughly two-thirds of which was need-based, and approximately $800 in work and other aid. Thus, a good deal of non-need-based aid, particularly gift aid, was awarded to low-income students. On average, total gift aid fell as family income rose and the share of need-based aid of any type decreased sharply for students from higher-income families. Interestingly, the "no FAFSA" group also received substantial gift aid. This is primarily due to the award of the state Bright Flight scholarship for students who scored 30 or above on the ACT. Receipt of this merit-based scholarship does not require students to file a FAFSA.[6]

A common assumption on the part of financial aid officers is that students who do not file a FAFSA are from relatively high-income families and typically receive non-need-based aid.[7] These data suggest that many low-income students also receive significant amounts of non-need-based aid.

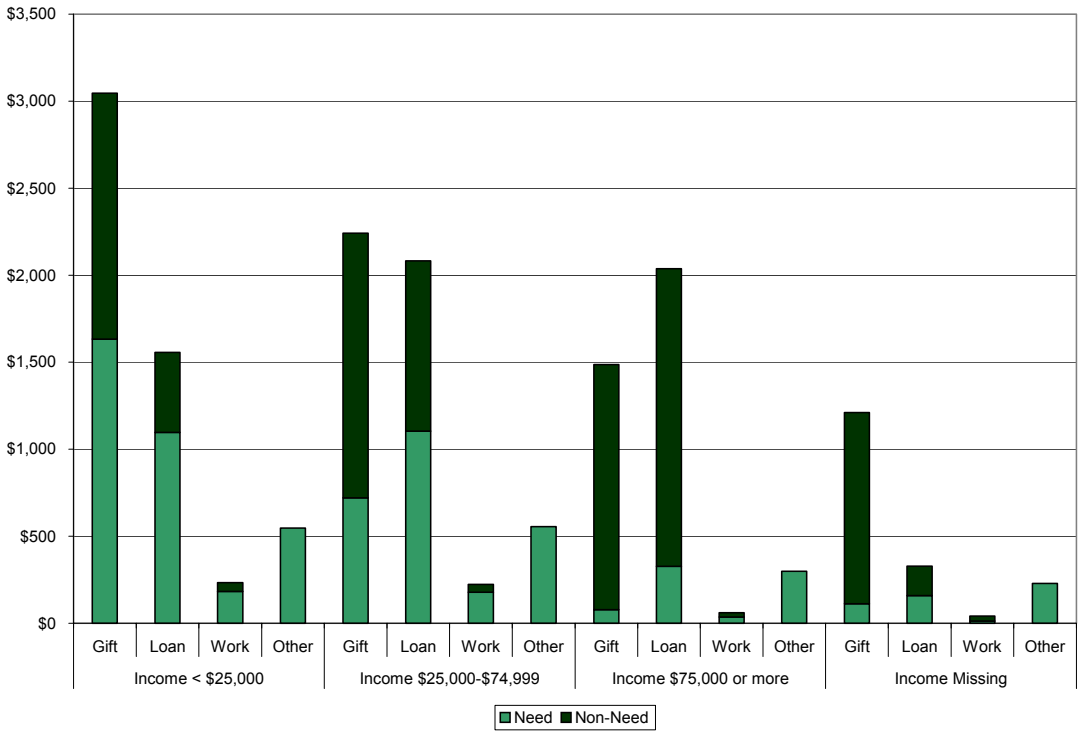
[4] For an explanation of how family income was calculated, see Appendix A.

[5] In Figure 3 and all subsequent figures, average aid per student is computed by dividing total aid by the total number of students in the income class. As such it includes students with zero aid. Table 3 also reports average aid per recipient. This is total aid divided by the total number of students who receive the aid, and excludes students with zero aid. Average aid per student allows comparisons across different types of financial aid. This is not possible using average aid per recipient since the denominators, or the number of aid recipients, are different for different types of aid.

[6] Some of the aid reported by the institutions was not classified as need or non-need (see Appendix Table A1) and is included in several "other" classifications. Federal "other" includes ROTC and Armed Forces scholarships, student support services grants, and several other grants and scholarships. Other state includes a Vietnam Veteran Survivor Grant, and some other small programs. Other institutional includes grants-in-aid, residence hall assistantships, fee waivers, and some other smaller grants.

[7] A crosscheck with student-reported family income from ACT records provides some support for this assumption. Roughly 30 percent of ACT test-takers do not report family income. Of those who do, 11.4 percent of FAFSA filers report family incomes of $60,000 or higher (1997 incomes). This compares to 30.7 percent of non-filers. For incomes of $100,000 or greater, the shares are 4.9 and 18.2 percent, respectively, for filers and non-filers. See Appendix, Table B5

Figure 3: Average Need-Based and Non-Need Based Financial Aid by Family Income in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions[a]



[a] Financial aid data are averaged over all students (recipients and non-recipients).

Table 3: Average Need Based and Non-Need Based Financial Aid by Family Income in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions

		Number of Students	Need Aid			Non-Need Aid			Total		
			Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student	Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student	Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student
Gift	Income < $25,000	1,231	64%	$2,547	$1,633	45%	$3,112	$1,413	83%	$3,798	$3,138*
	Income $25,000-$74,999	2,374	39%	$1,851	$721	52%	$2,903	$1,521	74%	$3,123	$2,307*
	Income $75,000 or more	921	5%	$1,506	$78	51%	$2,784	$1,409	56%	$2,738	$1,531*
	Income Missing	1,849	7%	$1,525	$112	37%	$2,936	$1,099	46%	$2,742	$1,259*
Loan	Income < $25,000	1,231	45%	$2,421	$1,097	14%	$3,171	$459	49%	$3,156	$1,556
	Income $25,000-$74,999	2,374	48%	$2,299	$1,105	29%	$3,314	$977	62%	$3,372	$2,082
	Income $75,000 or more	921	15%	$2,127	$328	44%	$3,918	$1,710	50%	$4,045	$2,038
	Income Missing	1,849	7%	$2,128	$159	7%	$2,419	$170	13%	$2,588	$329
Work	Income < $25,000	1,231	16%	$1,109	$183	5%	$1,001	$50	19%	$1,238	$233
	Income $25,000-$74,999	2,374	16%	$1,108	$178	4%	$1,127	$45	18%	$1,225	$223
	Income $75,000 or more	921	4%	$839	$36	2%	$1,172	$25	6%	$983	$62
	Income Missing	1,849	1%	$884	$12	2%	$1,162	$29	3%	$1,180	$41
Other	Income < $25,000	1,231	-	-	-	-	-	-	28%	$1,609	$455
	Income $25,000-$74,999	2,374	-	-	-	-	-	-	30%	$1,641	$491
	Income $75,000 or more	921	-	-	-	-	-	-	19%	$1,307	$254
	Income Missing	1,849	-	-	-	-	-	-	14%	$1,259	$181
Total	Income < $25,000	1,231	71%	$4,131	$2,913	56%	$3,449	$1,922	89%	$6,062	$5,382
	Income $25,000-$74,999	2,374	61%	$3,287	$2,005	66%	$3,867	$2,543	91%	$5,603	$5,103
	Income $75,000 or more	921	19%	$2,371	$443	72%	$4,348	$3,144	81%	$4,809	$3,885
	Income Missing	1,849	11%	$2,577	$283	42%	$3,077	$1,298	56%	$3,255	$1,810

* Total average institutional gift aid per student does not equal the sum of need and non-need institutional gift aid because some institutional gift aid could not be categorized as need or non-need.

Table 3A presents another way to array these data. This table compares the proportion of students by income class to the proportion of the total financial aid awarded. For example, students who filed a FAFSA from families with less than $25,000 in income comprised 19.3 percent of all students. These students received 50 percent of need-based gift aid and 30 percent of overall gift aid. These data demonstrate how financial aid varies with income. Gift and loan aid are most highly targeted to low income students. However, a good deal of loan aid goes to students in the middle income ($50-$75,000) range.

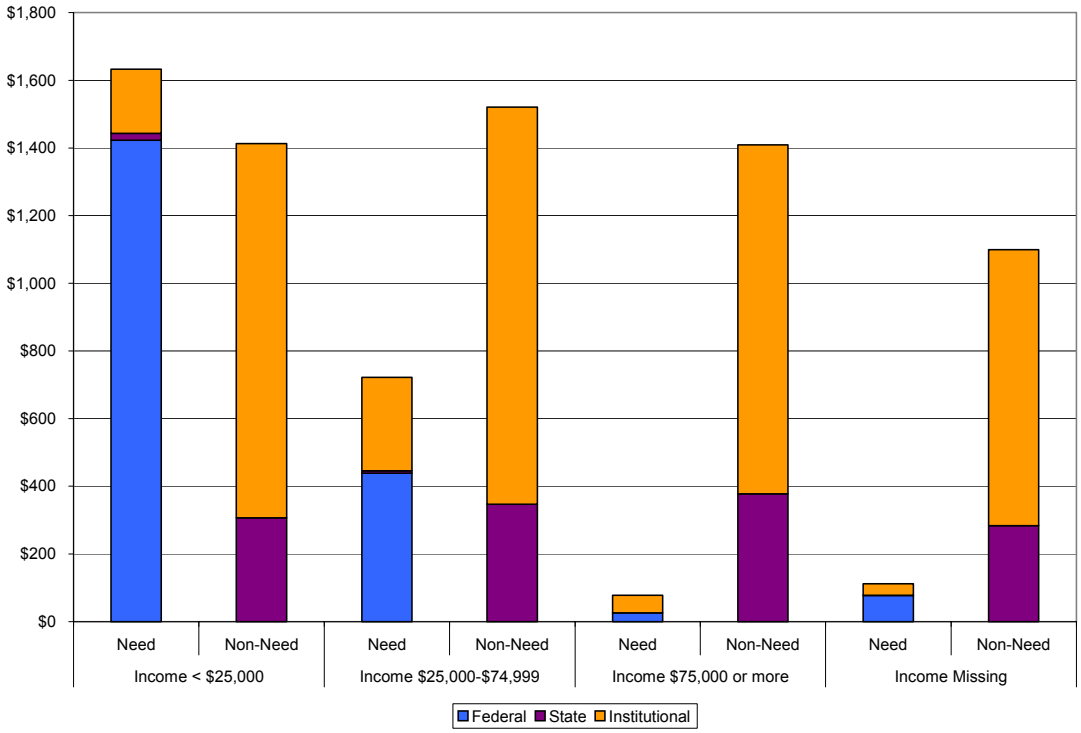
Table 3A: Distribution of Need Based and Non-Need Based Financial Aid by Family Income in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions

	Family Income	Number of Students	Percent of Students	Percent of Total Need Aid Dollars	Percent of Total Non-Need Aid Dollars	Percent of Total Aid Dollars
Gift	Income < $25,000	1,231	19.3%	50.2%	20.0%	29.5%
	Income $25,000-$74,999	2,374	37.2%	42.8%	41.6%	41.9%
	Income $75,000 or more	921	14.4%	1.8%	15.0%	10.8%
	Income Missing	1,849	29.0%	5.2%	23.4%	17.8%
	Total	6,375	100.0%	100.0%	100.0%	100.0%
Loan	Income < $25,000	1,231	19.3%	29.6%	11.8%	20.5%
	Income $25,000-$74,999	2,374	37.2%	57.4%	48.6%	52.9%
	Income $75,000 or more	921	14.4%	6.6%	33.0%	20.1%
	Income Missing	1,849	29.0%	6.4%	6.6%	6.5%
	Total	6,375	100.0%	100.0%	100.0%	100.0%
Work	Income < $25,000	1,231	19.3%	32.0%	25.1%	30.2%
	Income $25,000-$74,999	2,374	37.2%	60.1%	43.6%	55.8%
	Income $75,000 or more	921	14.4%	4.7%	9.4%	6.0%
	Income Missing	1,849	29.0%	3.2%	21.9%	8.0%
	Total	6,375	100.0%	100.0%	100.0%	100.0%
Other	Income < $25,000	1,231	19.3%	-	-	24.4%
	Income $25,000-$74,999	2,374	37.2%	-	-	50.8%
	Income $75,000 or more	921	14.4%	-	-	10.2%
	Income Missing	1,849	29.0%	-	-	14.6%
	Total	6,375	100.0%	-	-	100.0%
Total	Income < $25,000	1,231	19.3%	38.7%	17.3%	25.8%
	Income $25,000-$74,999	2,374	37.2%	51.3%	44.1%	47.2%
	Income $75,000 or more	921	14.4%	4.4%	21.1%	13.9%
	Income Missing	1,849	29.0%	5.6%	17.5%	13.0%
	Total	6,375	100.0%	100.0%	100.0%	100.0%

Figure 4 and Table 4 provide a detailed breakdown of gift aid by source. It is important to note that a substantial share of gift aid was institutional, and the vast majority of this institutional gift aid was not need-based. The average award was relatively similar for high-income and non-FAFSA students as for low-income families. Of course, a consequence of this fairly uniform distribution of institutional aid was that low-income students were substantial recipients – 36 percent of gift aid to students with family incomes under $25,000 was non-need-based institutional aid. If need-based aid is added, then institutional gift aid rose to 46 percent of total gift aid for low-income students. In short, the fact that aid is labeled "non-need" does not mean low-income students do not qualify for this aid, do not receive this type of aid or substantially benefit from it.

Table 4A compares proportions of students to proportions of aid and provides a summary comparison of the extent to which these various types of aid accrue to low-income students. Federal aid stands out clearly in this regard. The 19.3 percent of students who filed a FAFSA and came from a family with $25,000 or less in family income accounted for 50 percent of all federal aid dollars. By contrast, the 43 percent of students who did not file a FAFSA or filed a FAFSA and came from families with $75,000 or more income accounted for only six percent of federal aid dollars. The progressivity of federal aid contrasts sharply from the state's. The poorest 19 percent of students received 19 percent of state aid. The 39 percent of students from families with incomes from $25,000 to $75,000 accounted for 40 percent of state aid, while 14 percent of students from families with more than $75,000 in income accounted for 16 percent of financial aid dollars. Institutional aid is somewhat more progressive (i.e., favorable to low income students) than state aid, but less progressive than federal aid.

Figure 4: Average Federal, State, and Institutional Need Based and Non-Need Based Gift Aid by Family Income in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions[a]



[a] Financial aid data are averaged over all students (recipients and non-recipients).

Table 4: Average Federal, State, and Institutional Need-Based and Non-Need-Based Gift Aid by Family Income in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions

		Number of Students	Need Aid			Non-Need Aid			Total		
			Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student	Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student	Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student
Federal	Income < $25,000	1,231	62%	$2,305	$1,423	-	-	-	62%	$2,305	$1,423
	Income $25,000-$74,999	2,374	27%	$1,625	$439	-	-	-	27%	$1,625	$439
	Income $75,000 or more	921	2%	$1,728	$26	-	-	-	2%	$1,728	$26
	Income Missing	1,849	5%	$1,488	$77	-	-	-	5%	$1,488	$77
State**	Income < $25,000	1,231	1%	$1,341	$20	15%	$2,056	$307	16%	$2,002	$327
	Income $25,000-$74,999	2,374	1%	$1,378	$7	17%	$2,011	$347	18%	$1,998	$354
	Income $75,000 or more	921	0%	-	-	19%	$2,037	$378	19%	$2,037	$378
	Income Missing	1,849	0%	$1,125	$1	14%	$2,001	$284	14%	$1,994	$285
Institutional	Income < $25,000	1,231	13%	$1,459	$190	43%	$2,578	$1,106	54%	$2,550	$1,388*
	Income $25,000-$74,999	2,374	18%	$1,569	$276	51%	$2,322	$1,174	63%	$2,417	$1,514*
	Income $75,000 or more	921	4%	$1,265	$52	48%	$2,162	$1,031	52%	$2,148	$1,127*
	Income Missing	1,849	2%	$1,353	$34	35%	$2,313	$815	40%	$2,224	$897*

* Total average institutional gift aid per student does not equal the sum of need and non-need institutional gift aid because some institutional gift aid could not be categorized as need or non-need.
** After 1997, Missouri established a need-based financial aid program that is not reflected in this table.

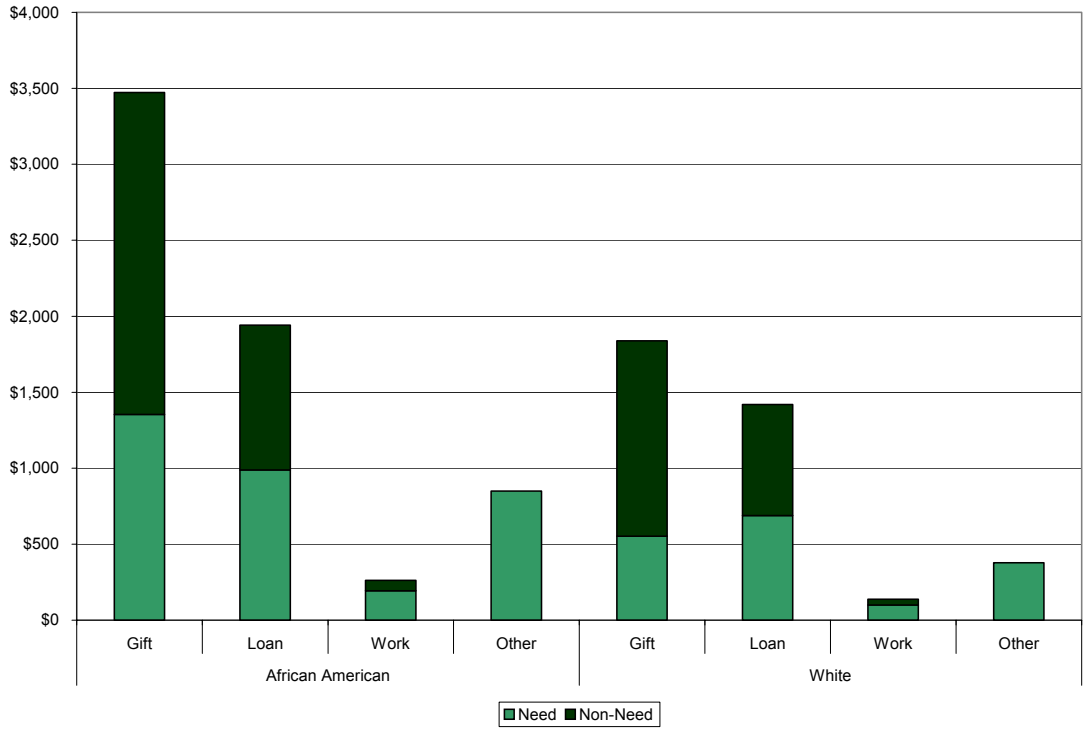
Table 4A: Distribution of Federal, State, and Institutional Need Based and Non-Need Based Gift Aid by Family Income in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions

	Family Income	Number of Students	Percent of Students	Percent of Total Need Aid Dollars	Percent of Total Non-Need Aid Dollars	Percent of Total Aid Dollars
Federal	Income < $25,000	1,231	19.3%	59.2%	-	59.2%
	Income $25,000-$74,999	2,374	37.2%	35.2%	-	35.2%
	Income $75,000 or more	921	14.4%	0.8%	-	0.8%
	Income Missing	1,849	29.0%	4.8%	-	4.8%
	Total	6,375	100.0%	100.0%	-	100.0%
State	Income < $25,000	1,231	19.3%	57.1%	18.2%	19.0%
	Income $25,000-$74,999	2,374	37.2%	38.6%	39.7%	39.7%
	Income $75,000 or more	921	14.4%	0.0%	16.8%	16.4%
	Income Missing	1,849	29.0%	4.3%	25.3%	24.9%
	Total	6,375	100.0%	100.0%	100.0%	100.0%
Institutional	Income < $25,000	1,231	19.3%	23.4%	20.6%	21.4%
	Income $25,000-$74,999	2,374	37.2%	65.5%	42.2%	44.9%
	Income $75,000 or more	921	14.4%	4.8%	14.4%	13.0%
	Income Missing	1,849	29.0%	6.3%	22.8%	20.7%
	Total	6,375	100.0%	100.0%	100.0%	100.0%

Race

Figure 5 and Table 5 show the receipt of aid by race. African American students in the sample received $3,472 on average in gift aid, of which only 39 percent was need-based. Gift aid for White students was $1,838, of which 30 percent was need-based aid. Thus for both White and African American students, the majority of gift aid was non-need-based. Loans from all sources total $1,942 for African American students and $1,119 for White students. Data from Table 5a show that aid dollars overall are highly targeted to African American students. For example, while African American students comprise just 7.5 percent of all students, they receive 14 percent of all gift aid.

Figure 5: Average Need-Based and Non-Need-Based Financial Aid by Race in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions[a]



[a] Financial aid data are averaged over all students (recipients and non-recipients).

Table 5: Average Need-Based and Non-Need Based Financial Aid by Race in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions

		Number of Students	Need Aid			Non-Need Aid			Total		
			Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student	Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student	Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student
Gift	African American	476	54%	$2,526	$1,353	50%	$4,238	$2,119	83%	$4,664	$3,851*
	White	5,495	27%	$2,022	$552	46%	$2,795	$1,286	63%	$2,969	$1,874*
Loan	African American	476	48%	$2,063	$988	33%	$2,857	$954	63%	$3,082	$1,943
	White	5,495	30%	$2,330	$688	21%	$3,435	$731	42%	$3,398	$1,419
Work	African American	476	18%	$1,076	$194	8%	$859	$67	21%	$1,230	$261
	White	5,495	9%	$1,067	$100	3%	$1,153	$37	12%	$1,193	$137
Other	African American	476	-	-	-	-	-	-	27%	$1,755	$472
	White	5,495	-	-	-	-	-	-	24%	$1,459	$343
Total	African American	476	64%	$3,984	$2,536	68%	$4,641	$3,140	92%	$7,060	$6,526
	White	5,495	40%	$3,351	$1,340	57%	$3,593	$2,054	78%	$4,860	$3,772

* Total average institutional gift aid per student does not equal the sum of need and non-need institutional gift aid because some institutional gift aid could not be categorized as need or non-need.

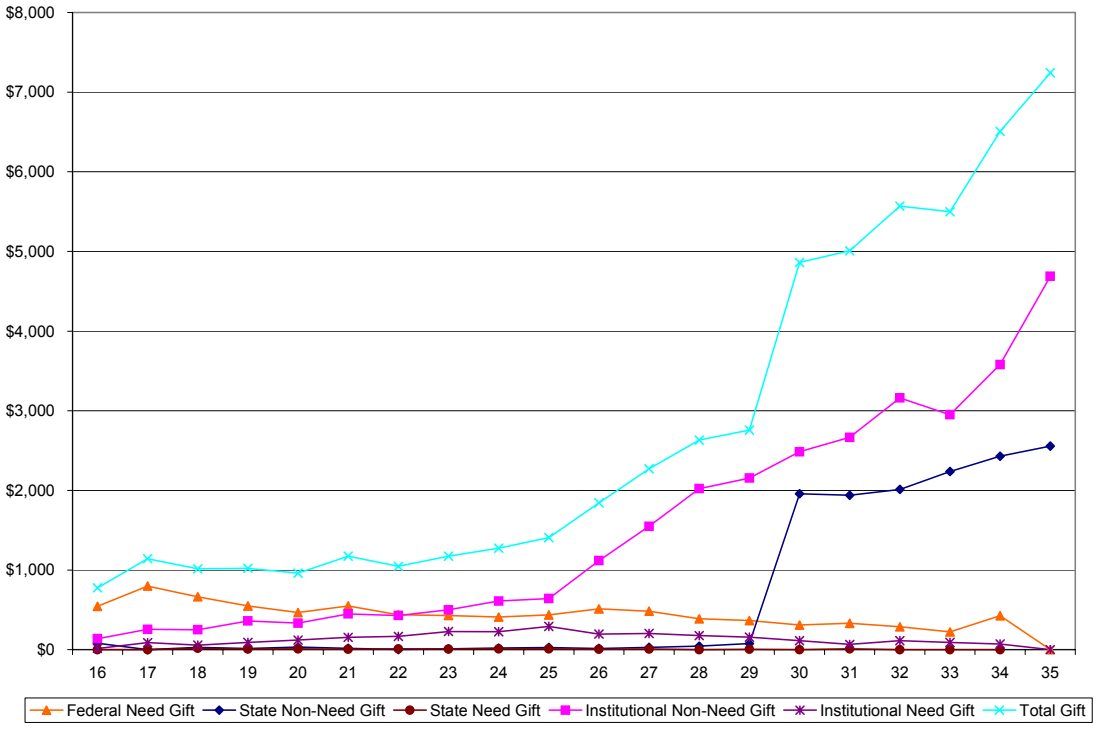
Table 5A: Distribution of Need-Based and Non-Need Based Financial Aid by Race in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions

	Race	Number of Students	Percent of Students	Percent of Total Need Aid Dollars	Percent of Total Non-Need Aid Dollars	Percent of Total Aid Dollars
Gift	African American	476	7.5%	16.1%	11.6%	14.0%
	White	5,495	86.2%	75.8%	81.4%	78.7%
	Other	404	6.3%	8.1%	6.9%	7.3%
	Total	6,375	100.0%	100.0%	100.0%	100.0%
Loan	African American	476	7.5%	10.3%	9.5%	9.9%
	White	5,495	86.2%	82.7%	84.1%	83.4%
	Other	404	6.3%	7.0%	6.4%	6.7%
	Total	6,375	100.0%	100.0%	100.0%	100.0%
Work	African American	476	7.5%	13.1%	13.1%	13.1%
	White	5,495	86.2%	78.1%	83.2%	79.4%
	Other	404	6.3%	8.8%	3.7%	7.5%
	Total	6,375	100.0%	100.0%	100.0%	100.0%
Other	African American	476	7.5%	-	-	9.8%
	White	5,495	86.2%	-	-	82.2%
	Other	404	6.3%	-	-	8.1%
	Total	6,375	100.0%	-	-	100.0%
Total	African American	476	7.5%	13.0%	10.9%	12.1%
	White	5,495	86.2%	79.4%	82.4%	80.8%
	Other	404	6.3%	7.6%	6.7%	7.1%
	Total	6,375	100.0%	100.0%	100.0%	100.0%

Student Ability

Figure 6 and Table 6 provide a detailed breakdown of gift aid by average ACT composite score. Total gift aid clearly rose with ACT scores. The positive relationship was driven primarily by two financial aid sources. State gift aid rose sharply with ACT scores, as clearly shown by the sharp jump at ACT scores of 30 and above, the qualifying score for the state Bright Flight scholarship ($2,000 per year for up to five years). Institutional aid is also positively related to ACT scores, suggesting that institutions are using institutional aid (e.g., tuition discounts) to attract students with ACT scores above 25 (the state average score is 21).

Figure 6: Average Federal, State, and Institutional Need Based and Non-Need Based Gift Aid by ACT Composite Score in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions[a]



[a] Financial aid data are averaged over all students (recipients and non-recipients).

Table 6: Average Need-Based and Non-Need Based Financial Aid by ACT Composite Score in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions

	ACT Score	Number of Students	Need			Non-Need			Total		
			Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student	Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student	Percent Receiving Aid	Average Aid per Recipient	Average Aid per Student
Gift	20 or below	1,402	35%	$2,023	$706	17%	$1,850	$306	51%	$2,179	$1,114*
Gift	21-23	1,488	31%	$2,139	$661	26%	$1,806	$469	49%	$2,389	$1,180*
Gift	24-26	1,377	30%	$2,335	$695	45%	$1,741	$790	62%	$2,448	$1,513*
Gift	27 or higher	1,943	25%	$1,992	$505	88%	$3,784	$3,315	91%	$4,260	$3,889*
Gift	ACT Missing	165	28%	$1,939	$540	10%	$1,584	$154	35%	$2,082	$732*
Loan	20 or below	1,402	36%	$2,257	$823	17%	$3,026	$520	45%	$3,007	$1,343
Loan	21-23	1,488	35%	$2,314	$818	22%	$3,628	$814	47%	$3,494	$1,632
Loan	24-26	1,377	32%	$2,277	$729	21%	$3,742	$774	43%	$3,480	$1,504
Loan	27 or higher	1,943	23%	$2,380	$559	27%	$3,223	$876	41%	$3,467	$1,435
Loan	ACT missing	165	27%	$2,452	$669	13%	$2,926	$390	32%	$3,360	$1,059
Work	20 or below	1,402	8%	$1,019	$79	6%	$1,022	$63	11%	$1,282	$143
Work	21-23	1,488	12%	$1,160	$143	4%	$1,140	$49	15%	$1,291	$192
Work	24-26	1,377	12%	$1,035	$126	3%	$1,137	$32	14%	$1,125	$159
Work	27 or higher	1,943	9%	$1,088	$102	1%	$1,279	$18	11%	$1,134	$120
Work	ACT missing	165	4%	$1,093	$46	3%	$829	$25	5%	$1,310	$71
Other	20 or below	1,402	-	-	-	-	-	-	15%	$1,335	$202
Other	21-23	1,488	-	-	-	-	-	-	22%	$1,319	$286
Other	24-26	1,377	-	-	-	-	-	-	24%	$1,342	$326
Other	27 or higher	1,943	-	-	-	-	-	-	32%	$1,795	$579
Other	ACT missing	165	-	-	-	-	-	-	4%	$1,515	$64
Total	20 or below	1,402	49%	$3,300	$1,608	35%	$2,577	$890	73%	$3,840	$2,802
Total	21-23	1,488	45%	$3,591	$1,622	44%	$3,054	$1,332	71%	$4,645	$3,290
Total	24-26	1,377	42%	$3,656	$1,551	56%	$2,863	$1,597	76%	$4,626	$3,500
Total	27 or higher	1,943	36%	$3,275	$1,166	90%	$4,657	$4,208	94%	$6,381	$6,023
Total	ACT missing	165	36%	$3,453	$1,255	22%	$2,608	$569	45%	$4,296	$1,926

* Total average institutional gift aid per student does not equal the sum of need and non-need institutional gift aid because some institutional gift aid could not be categorized as need or non-need.

Table 7 reports the relationship between financial aid and tuition in a slightly different manner. Here the distribution of students is compared with the distribution of financial aid. Students with high ACT scores receive a disproportionately larger amount of total gift aid dollars than students with low ACT scores, 57.8 percent compared to 11.9 percent. Students with an ACT score of 20 or below account for 22 percent of all students, and receive 24.7 percent of the need-based gift aid but only 4.9 percent of the non-need based gift aid. By contrast, students with a 27 or higher ACT score comprise 30.5 percent of all students, and receive 24.5 percent of need-based aid and 74.2 percent of non-need based aid.

Table 7: Distribution of Need-Based and Non-Need-Based Financial Aid by ACT Composite Score in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions

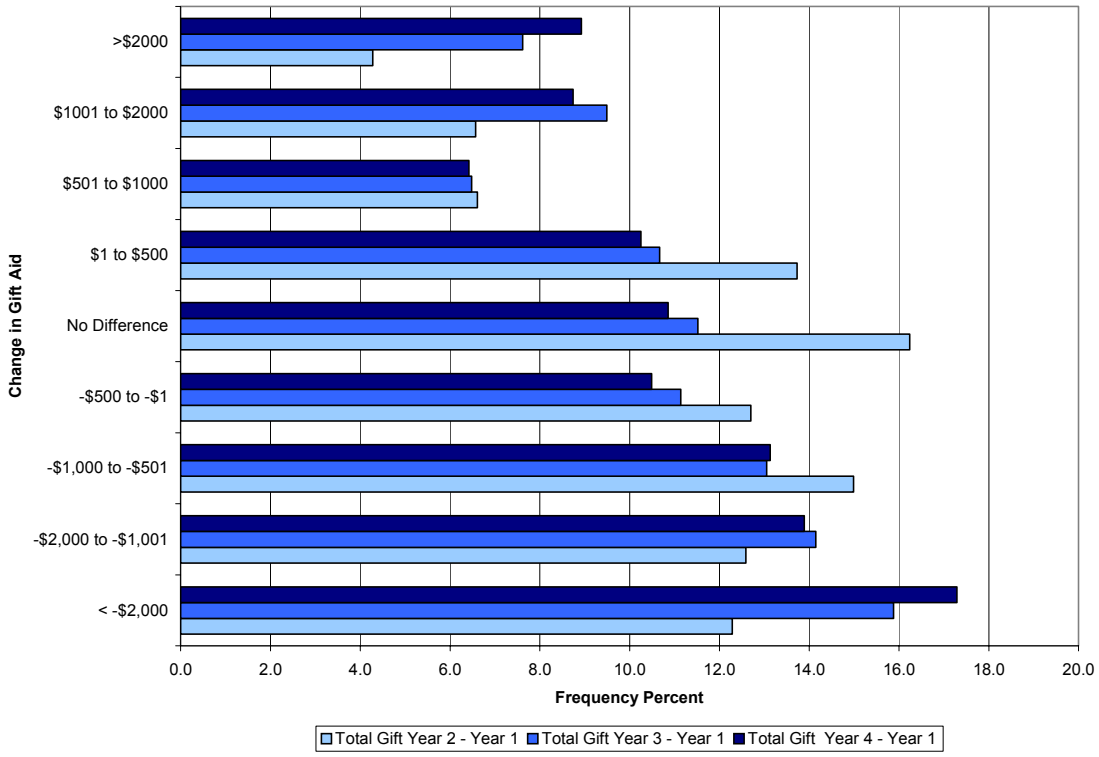
	ACT Score	Number of Students	Percent of Students	Percent of Total Need Aid Dollars	Percent of Total Non-Need Aid Dollars	Percent of Total Aid Dollars
Gift	20 or below	1,402	22.0%	24.7%	4.9%	11.9%
	21-23	1,488	23.3%	24.6%	8.0%	13.4%
	24-26	1,377	21.6%	23.9%	12.5%	15.9%
	27 or higher	1,943	30.5%	24.5%	74.2%	57.8%
	ACT Missing	165	2.6%	2.2%	0.3%	0.9%
	Total	6,375	100.0%	100.0%	100.0%	100.0%
Loan	20 or below	1,402	22.0%	25.2%	15.3%	20.1%
	21-23	1,488	23.3%	26.6%	25.4%	26.0%
	24-26	1,377	21.6%	22.0%	22.3%	22.2%
	27 or higher	1,943	30.5%	23.8%	35.7%	29.8%
	ACT missing	165	2.6%	2.4%	1.3%	1.9%
	Total	6,375	100.0%	100.0%	100.0%	100.0%
Work	20 or below	1,402	22.0%	15.8%	36.1%	21.1%
	21-23	1,488	23.3%	30.3%	29.8%	30.1%
	24-26	1,377	21.6%	24.7%	18.0%	23.0%
	27 or higher	1,943	30.5%	28.2%	14.3%	24.5%
	ACT missing	165	2.6%	1.1%	1.7%	1.2%
	Total	6,375	100.0%	100.0%	100.0%	100.0%
Other	20 or below	1,402	22.0%	---	---	12.3%
	21-23	1,488	23.3%	---	---	18.6%
	24-26	1,377	21.6%	---	---	19.6%
	27 or higher	1,943	30.5%	---	---	49.1%
	ACT missing	165	2.6%	---	---	0.5%
	Total	6,375	100.0%	---	---	100.0%
Total	20 or below	1,402	22.0%	24.3%	9.1%	15.3%
	21-23	1,488	23.3%	26.0%	14.5%	19.1%
	24-26	1,377	21.6%	23.0%	16.1%	18.8%
	27 or higher	1,943	30.5%	24.4%	59.7%	45.6%
	ACT missing	165	2.6%	2.2%	0.7%	1.2%
	Total	6,375	100.0%	100.0%	100.0%	100.0%

Receipt of Aid Beyond the Freshman Year

All of the analyses thus far has focused on patterns of financial aid in the freshman (1997-98) school year. An interesting question is whether patterns of financial aid observed in a student's freshman year persist into subsequent years. To a great extent, researchers have relied on a freshman year snapshot from the NPSAS survey to draw inferences about aid over four years. However, Heller (2003) notes that while the NPSAS survey provides a great deal of information on freshman year financial aid, it provides very limited data on aid in the following years. Thus, to what extent does a freshman "snapshot" capture the dynamics of student aid in subsequent years? That question is explored by comparing gift aid in a student's freshman year with gift aid in subsequent years for students enrolled for at least 24 credit hours in both years. In Figure 7, the vertical axis shows dollar changes in aid between the freshman and end year, with the middle category ("no difference") meaning that there was no change in aid between the freshman and the comparison year. The sample is also limited to students who received gift aid in their freshman year.

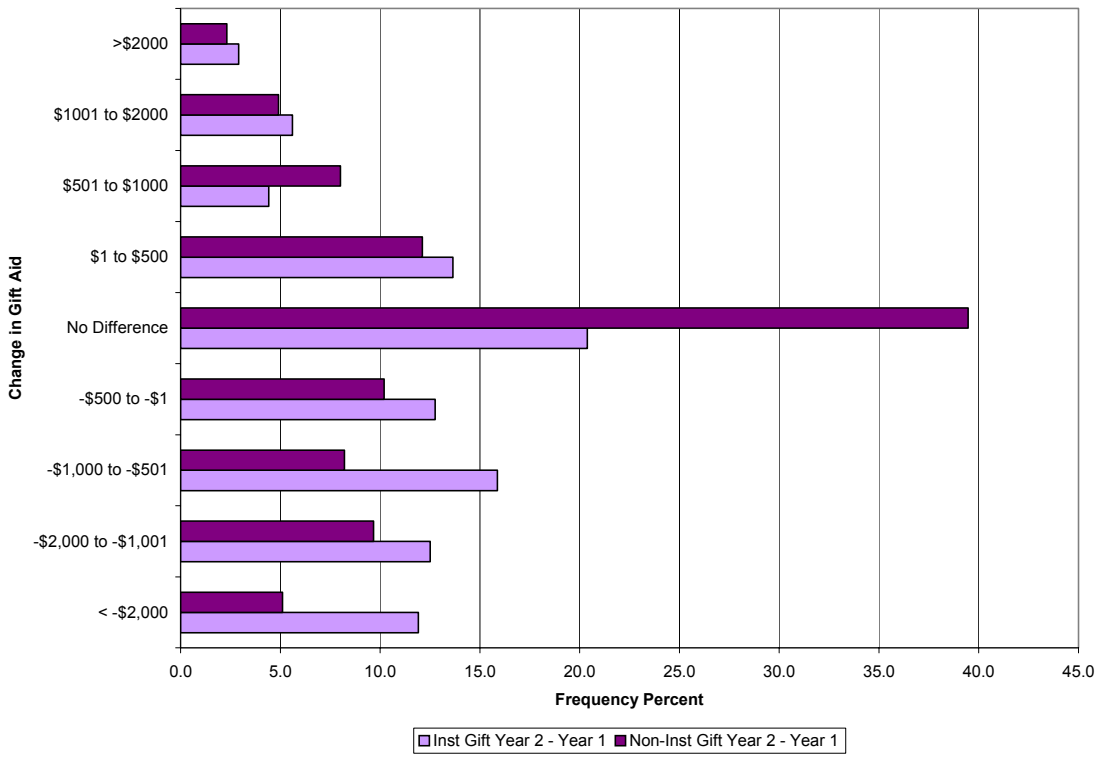
Figure 7 shows that there was considerable variation in gift aid over the subsequent years. Each set of bars shows changes between the freshman year and years two through four. For example, from the freshman to sophomore year, gift aid was unchanged for 16 percent of the students, however it increased by $2,000 or more for four percent of students and it fell by at least $2,000 for 12 percent of gift aid recipients. There is a clear tendency for gift aid to decrease for more freshman recipients than for it to increase. Table 8 shows that the average gift aid award fell by roughly four hundred dollars between a student's first and subsequent years. This decline in gift aid in subsequent years may be the result of institutional gift aid being dependent on a level of student academic performance which is not achieved by some students either during or beyond their freshman year.

Figure 7: Changes in Total Gift Aid from Year 1 (1997-1998) to Year 2 (1998-1999), Year 3 (1999-2000), and Year 4 (2000-2001): First-Time Freshmen Enrolled in Participating Institutions[a]



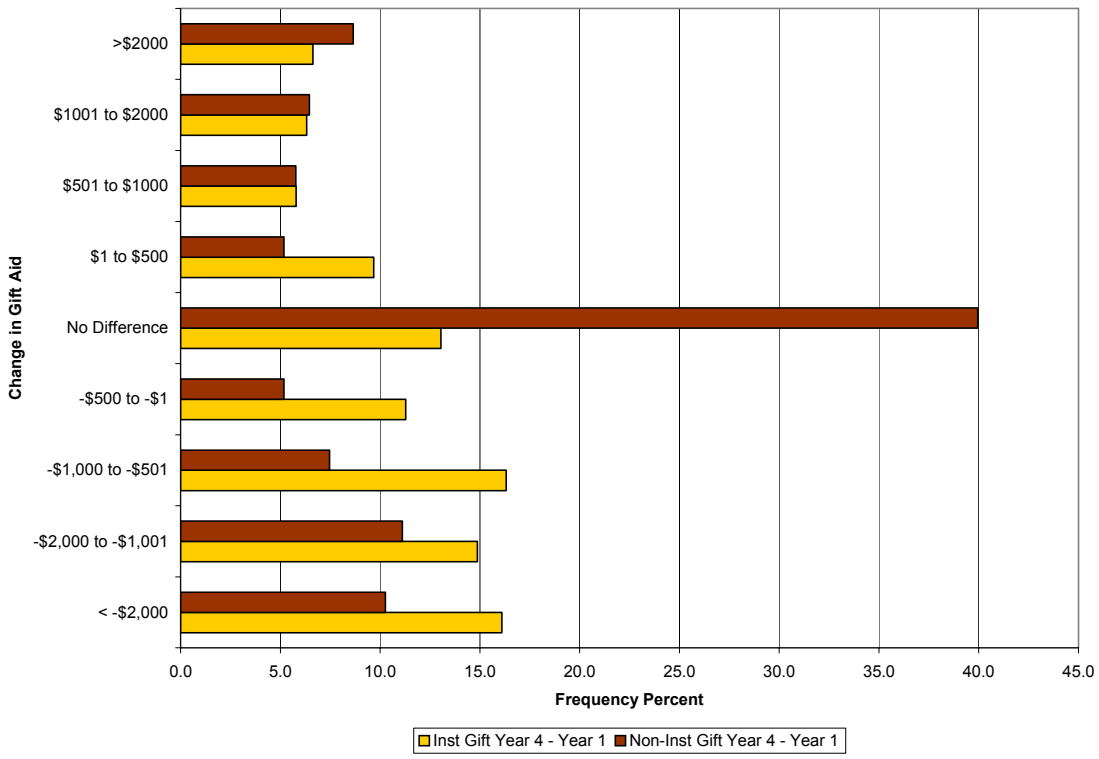
[a] Students earning at least 24 credit hours in each academic year.

Figure 8: Changes in Institutional and Non-Institutional Gift Aid from Year 1 (1997-1998) to Year 2 (1998-1999): First-Time Freshmen Enrolled in Participating Institutions[a]



[a] Students earning at least 24 credit hours in each academic year.

Figure 9: Changes in Institutional and Non-Institutional Gift Aid from Year 1 (1997-1998) to Year 4 (2000-2001): First-Time Freshmen Enrolled in Participating Institutions[a]



[a] Students earning at least 24 credit hours in each academic year.

Table 8: Changes in Institutional and Non-Institutional Gift Aid from Year 1 (1997-1998) to Subsequent Years: First-Time Freshmen Enrolled in Participating Institutions[a]

		Number of Students	Average Change in Gift Aid	Frequency Distribution of Change in Gift Aid								
				< -$2,000	-$2,000 to -$1,001	-$1,000 to -$501	-$500 to -$1	No Difference	$1 to $500	$501 to $1000	$1001 to $2000	>$2000
Total	Year 2 - Year 1	2,709	-$426	12.3	12.6	15.0	12.7	16.2	13.7	6.6	6.6	4.3
	Year 3 - Year 1	2,361	-$387	15.9	14.2	13.1	11.1	11.5	10.7	6.5	9.5	7.6
	Year 4 - Year 1	2,117	-$392	17.3	13.9	13.1	10.5	10.9	10.3	6.4	8.7	8.9
Inst Gift	Year 2 - Year 1	2,375	-$496	11.9	12.5	15.9	12.8	20.4	13.6	4.4	5.6	2.9
	Year 3 - Year 1	2,069	-$473	14.4	14.1	15.8	11.9	14.2	10.5	6.3	7.4	5.4
	Year 4 - Year 1	1,870	-$537	16.1	14.9	16.3	11.3	13.1	9.7	5.8	6.3	6.6
Non-Inst Gift	Year 2 - Year 1	1,510	-$141	5.1	9.7	8.2	10.2	39.5	12.1	8.0	4.9	2.3
	Year 3 - Year 1	1,326	-$181	8.1	12.8	7.4	6.5	38.8	9.1	5.5	7.6	4.2
	Year 4 - Year 1	1,179	-$121	10.3	11.1	7.5	5.2	40.0	5.2	5.8	6.5	8.7

[a] Students earning at least 24 credit hours in each academic year.

Section III: Impact of Financial Aid on Selected Student Outcomes

The most direct measure of student success is degree completion (see Appendix Table C1 for details). Table 9 presents a simple comparison of students who received financial aid with students who did not receive aid. As can be seen from the table, on average, more students who received financial aid completed a degree by their sixth year (150 percent of time to degree completion) than did students receiving no aid. With the exception of student loans, this pattern also holds for a year four comparison (100 percent of time to degree completion). However, it would be unwise to conclude from the simple tabulations in Table 9 that financial aid causes students to complete their degrees in a timely manner. It may be, for example, that students who receive financial aid are more academically prepared or motivated than those who do not. In this case, the students who received aid would likely have had a higher probability of degree completion whether or not they received aid.

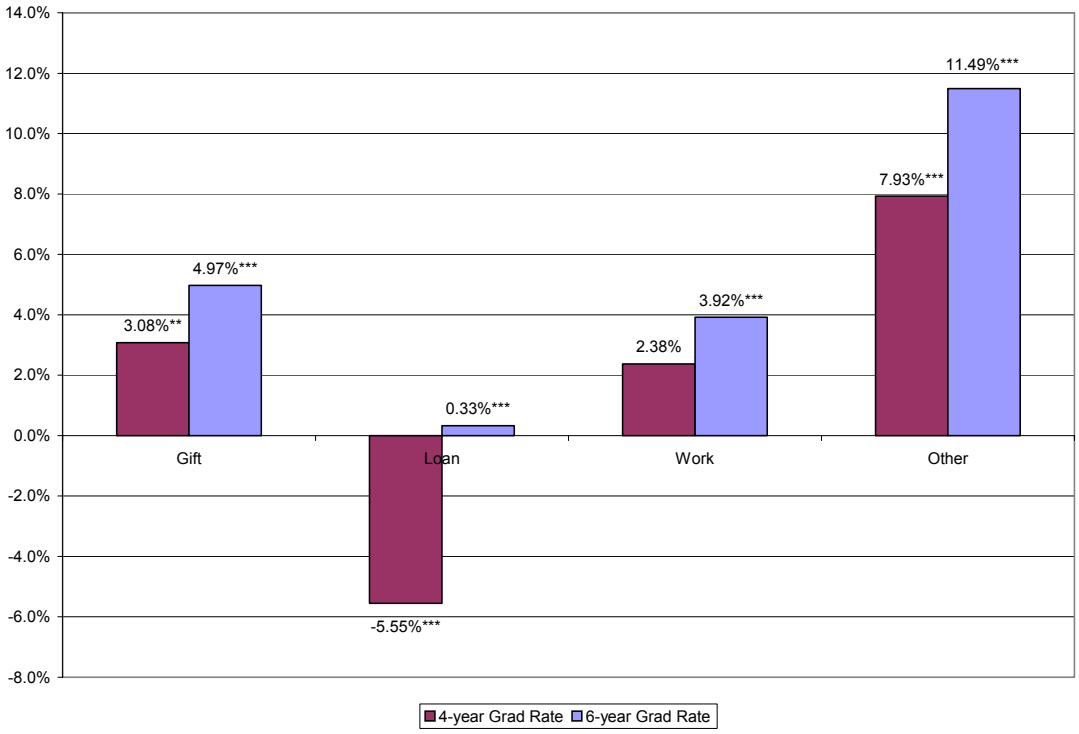
Table 9: Four- and Six-Year Graduation Rates for Students Receiving Different Types of Financial Aid: First-Time Freshmen Enrolled in Participating Institutions

	Four-Year Graduation		Six-Year Graduation	
	Number	Graduation Rate	Number	Graduation Rate
Gift Aid	4,503	23.4%	4,627	51.7%
No Gift Aid	1,872	12.3%	1,748	32.3%
Loan Aid	3,478	18.1%	3,721	48.0%
No Loan Aid	2,897	22.5%	2,654	44.2%
Work Aid	1,091	23.5%	1,135	52.4%
No Work Aid	5,284	19.4%	5,240	45.1%
Other Aid	2,183	29.8%	2,265	61.4%
No Other Aid	4,192	15.1%	4,110	38.1%
Any Aid	5,359	21.8%	5,446	49.5%
No Aid	1,016	11.2%	929	28.0%

In order to explore possible causal relationships between financial aid and graduation, student background characteristics are controlled for by using multivariate statistical methods. These statistical models control for student characteristics that might be associated with financial aid and academic success – student demographic characteristics, student achievement (ACT scores and high school class rank), family income, and college-level variables – in order to isolate the effect of financial aid per se. Details of the regression estimates appear in Appendix Table C2. Figure 10 summarizes the effect of student aid variables. The bars in Figure 10 reflect the average effect on graduation probabilities for each type of financial aid. For example, other things being equal, the average student who received gift aid had a 3.08 percent higher four year graduation rate than a student who did not. For reference, the average home-institution graduation rates were 20.1 percent (four-year) and 46.4 percent (six-year). On average, gift aid raises the four-year graduation probability by 3 percentage points and the six-year graduation probability by 5 percentage points, which are substantial increases by comparison with the relatively low four and six-year graduation rates. Student loans are associated with lower four year or very small positive six-year graduation rates. Work and "other" are associated with higher graduation rates.[8] The large effects for "other" may reflect the fact that this category includes Armed Forces and ROTC scholarships. Students in these officer training programs may be more committed to graduation in a timely manner than an average student.

[8] Findings are very similar if total public graduation rates from any Missouri public two- or four-year institution rather than same institution graduation rates are used.

Figure 10: Estimated Effect of Increasing Financial Aid from No Aid to the Average Award on Four- and Six-Year Graduation Rates: First-Time Freshmen Enrolled in Participating Institutions [a]



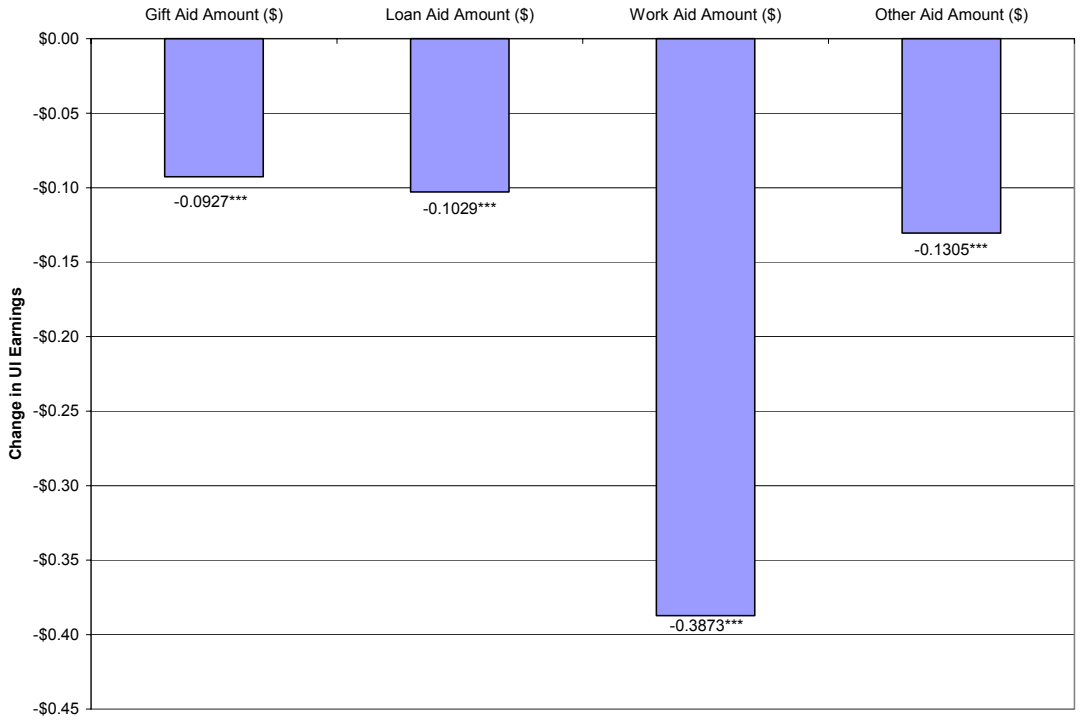
[a] Average four-year completion probability (same institution) = .201, average six-year completion probability (same institution) = .461. Asterisks indicate statistical significance (** 5 percent, *** 1 percent). These are for an F-test of the joint test that the coefficients of both a dummy variable (received aid) and the aid amount are both zero. For details see Appendix C2.

Figure 11 provides some insight as to why these financial aid packages may be associated with differences in graduation rates. This analysis examines the relationship between financial aid and non-work study employment during the academic year, in particular, the extent to which students "tradeoff" between the two. Student higher education records were linked to quarterly labor market earnings data derived from federal Unemployment Insurance (UI) tax records. The dependent variable is the sum of quarter IV (October-December) and quarter I (January-March) earnings during an academic year for students enrolled full-time. The regression coefficients are found in Figure 11. There is clear evidence that such a tradeoff is occurring. Each dollar of gift and loan aid is associated with ten cents ($0.10) lower labor market earnings. Not surprisingly, the largest tradeoff is found for work aid.[9] Each dollar of work aid lowers

[9] Student work aid is not covered by the Federal UI system, so this relationship is not tautological. Students are trading off UI-covered employment for non-UI covered work-study jobs.

school year earnings by $0.39. An additional dollar of "other" aid lowers labor market earnings by $0.13.

Figure 11: Estimated Effect of an Additional Dollar of Financial Aid on School Year Labor Market Earnings in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions[a]



[a] Asterisks indicate statistical significance (*** 1 percent).

Debt After Graduation

Loan debt for graduating students has been a topic of considerable policy discussion. Many in the education community have expressed concern about the effect of high levels of debt on students upon graduation. Some have argued that high levels of debt may lead students to reject jobs such as teaching or other social service professions in favor of more lucrative work. Others are concerned about the increased likelihood of student loan defaults. Thus, it is useful to examine the level of debt incurred by these students during their college career. Note that these tabulations include all subsidized and non-subsidized federal, state, or institutional loans.

Table 10 shows the number of the 6,375 first-time freshmen in fall 1997 who graduated within six years, the percent of graduates with loans, and the average accumulated loan debt among those students who had loans. Sixty percent of the students who graduated within six years had student loans, with an average loan balance of $13,633. However, among students who filled out the FAFSA, the accumulated debt was much higher, roughly $18,000, and largely independent of family income. Not surprisingly, relatively few students who did not fill out a FAFSA graduated with loan debt. Among those who did, the average loan debt was quite low.[10]

There is some variation in loan debt by demographic group. About 82 percent of African American graduates had taken out loans, with an average debt of $18,162. Only 59 percent of white students had loans by the time of graduation, with an average accumulated debt of $13,046. Hispanics and other racial minorities were also more likely to take out loans than white graduates. Finally, the propensity to borrow and the average accumulated loan debt of male and female graduates were very similar, with females slightly more likely to borrow and with a modestly larger average amount of loan debt.

[10] As noted earlier, a small number of students in the sample who filled out a FAFSA late and never filled out a subsequent FAFSA on time were coded as "no FAFSA." This data limitation was fixed for the 2002-03 academic year and beyond. See Appendix A for details on how family income was calculated.

Table 10: Student Loan Debt for Students Graduating Within Six Years by Family Income, Race, and Gender: First-Time Freshmen Enrolled in Participating Institutions

	Number of Graduates	Percent with Loans	Average Accumulated Loan Debt
All Students	2958	60.4%	$13,633
Family Income			
Income < $25,000	505	75.0%	$17,452
$25,000-$74,999	1170	80.9%	$18,585
$75,000 or more	489	74.6%	$18,440
No FAFSA	794	12.1%	$945
White	2619	58.6%	$13,046
African American	164	81.7%	$18,162
Hispanic	27	77.8%	$13,073
Other Race	148	64.2%	$19,093
Female	1663	61.6%	$13,900
Male	1295	58.8%	$13,289

Finally, Table 11 reports loan debt for students who graduated within six years and those who did not, broken down by accumulated credit hours for the non-graduates. These data illustrate the point noted in many studies that higher education dropouts accumulate substantial debt as well. Indeed, in the six years covered by this study, substantially more debt was accumulated by students who did not earn a degree than by those who did.[11]

[11] The large average debt accumulated by students who have completed over 120 credit hours but who did not yet receive a degree are largely accounted for by students at the University of Missouri – Kansas City and the University of Missouri – Columbia in various professional programs (i.e. medicine, pharmacy, and veterinary).

Table 11: Student Loan Debt for Students Graduating or Not Graduating Within Six Years by Accumulated Credit Hours for the Non-Graduates: First-Time Freshmen Enrolled in Participating Institutions

	Number of Graduates	Percent with Loans	Average Accumulated Loan Debt
Graduated	2,958	60.4%	$13,633
No Degree - Hrs.>120*	241	75.5%	$24,857
No Degree - 90<Hrs.<=120	412	60.0%	$10,811
No Degree - 60<Hrs.<=90	471	63.9%	$8,635
No Degree - 30<Hrs.<=60	853	63.7%	$5,744
No Degree - Hrs.<=30	1,440	46.0%	$2,382

* see footnote 11

Early Career Earnings

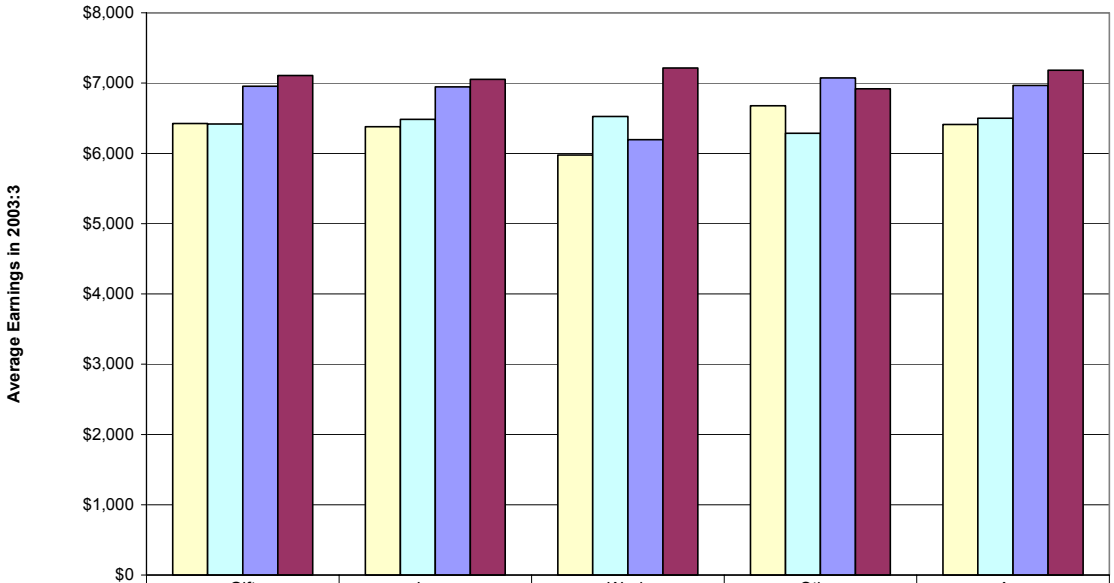
One important outcome measure that can be examined with the longitudinal data is earnings after degree completion. However, due to the time period covered by the longitudinal study, only an early snapshot of earnings is possible. Because academic year 1997-1998 is the earliest year for which complete institutional student financial aid data are available from the participating institutions, the earnings data are limited to the fall 1997 first-time freshman cohort and should, therefore, be interpreted cautiously. The most current UI earnings data available for this research are for the third quarter of 2003 (2003:3). Since only 20 percent of students had earned baccalaureate degrees after four years and just 46 percent after six years, the four-year graduates had only been in the labor market for little more than two years following a spring graduation. Six-year graduates had just earned their degrees when their earnings data may have first become available on the UI record files. A second limitation of the UI earnings data is that they only cover Missouri employment; therefore, no earnings data are available for graduates who leave or work outside of the state.

Despite these limitations, data from an early post-graduate earnings analysis are presented below. Figure 12 compares the third quarter 2003 earnings of students from the cohort of 1997 first-time freshmen who received and who did not receive financial aid by their graduation status. The first two bars compare earnings of all students, whether or not they received a degree, by aid status. There is little difference in the immediate post-college earnings by type of financial aid received. Students who received financial aid had earnings roughly comparable to those who did not. The largest earnings gap, roughly $547 in quarterly earnings (8.2 percent), is found for work-study aid recipients who, on average, earned $547 less each quarter than non-aided students.

The second two bars focus on students who earned a baccalaureate degree. Not surprisingly, the graduates had higher earnings on average. However, as is the case when looking at all students, there was little difference in quarterly earnings between aid

received and not received among college graduates. Overall, gift aid recipients who earned diplomas earned $143 (2.2 percent) more than graduate non-recipients.

Figure 12: Missouri 2003:3 Earnings for Graduates and Non-Graduates by Type of Financial Aid: First-Time Freshmen Enrolled in Participating Institutions



	Gift	Loan	Work	Other	Any
Aid-all	$6,424	$6,377	$5,976	$6,675	$6,409
No Aid-all	$6,419	$6,485	$6,523	$6,286	$6,497
Aid-grad	$6,954	$6,947	$6,193	$7,073	$6,967
No-Aid-grad	$7,107	$7,051	$7,214	$6,918	$7,183

Section IV: Conclusion

In order to better understand the dynamics of student financial aid, and particularly the role of institutional aid, a longitudinal student data file was constructed combining federal, state, and institutional financial aid data, and unemployment insurance wage records, along with detailed data on student higher education performance for six public four-year higher education institutions in Missouri. These six institutions enroll roughly one-half of first-time freshmen in Missouri public four-year colleges and universities.

To a considerable extent, institutional financial aid has been a "black box." Most state higher education agencies do not collect these data at the student-level, which limits the ability to analyze distributional patterns or the effect of institutional aid on student outcomes. This is an important omission as institutional financial aid is an important source of support for Missouri students. However, the labels put on this aid ("need"/"non-need") are misleading. "Non-need" gift aid is an important source of aid for low-income students and most of this non-need aid is coming from the institutions. "Non-need" institutional gift aid accounts for 36 percent and non-need gift aid from all other sources accounts for another 10 percent of total gift aid for students with family income less than $25,000. However, it is also clear that institutions use gift aid to raise the academic quality of their student enrollments: gift aid has a strong and positive association with student ACT composite scores. This positive relationship is driven by both state and institutional gift aid. The relationship between ACT scores and financial aid in the form of loans or work-study awards is weaker.

Turning to student outcomes, students who receive gift aid are more likely to graduate in four or six years than students who do not receive gift aid, even after controlling for demographic characteristics and differences in high school preparation. This also holds for work aid but is not found for loan aid. One mechanism by which aid may increase graduation rates is through work. Students who receive gift aid have lower labor market earnings while in school.

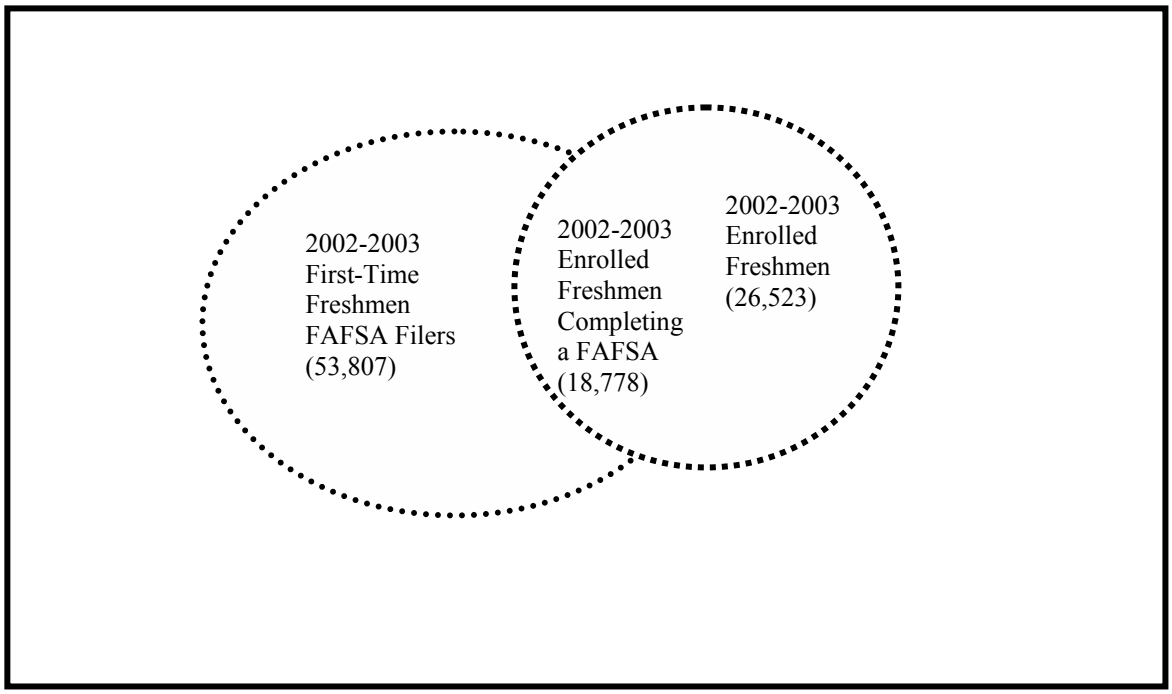
These findings are a first report from ongoing research designed to create a complete longitudinal database on financial aid, student performance, and workforce participation for Missouri public higher education students. In starting this project, there was an under appreciation for how truly complicated institutional financial data are. Federal and state aid form only part of a very complicated total financial aid mosaic. Findings from this study will be used to encourage more institutions to provide the institutional financial aid data needed to further this research. An important extension of this research will be inclusion of two-year community colleges, which provide an important stepping-stone to baccalaureate degrees for many low-income students. The work to date is evidence of the value of a statewide student financial aid database in formulating higher education policy affecting levels of state appropriations, tuition, and student financial aid.

Section V: Who Fills Out a FAFSA? An Exploratory Analysis

The first step in securing financial aid for most college students is filling out a Free Application for Federal Student Aid (FAFSA). Filling out this form gives a measure of the demand for financial aid and provides some insight as to the characteristics of low-income and needy students who wish to attend a higher education institution. In order to better understand the demand for financial aid and the extent to which students, particularly minority students, are making use of existing avenues of financial support, data on Missouri high school graduates who filled out a FAFSA requesting aid for the 2002-2003 academic year were examined.

Figure 13 provides an overview of the analysis. The first part of this section corresponds to the left-hand ellipse, which analyzes the data on 53,807 Missouri high school graduates who never attended college and filled out a FAFSA for the 2002-2003 academic year. The second part of this section focuses on the population of 26,523 enrolled freshmen in fall 2002 (represented by the right hand circle), of whom 18,778 completed a FAFSA. The interest here is the rate at which different groups of enrolled freshmen file a FAFSA indicating a strong interest in applying for financial.

Figure 13: Populations Analyzed in this Report: All 2002-2003 Undergraduate Missouri FAFSA-Filers and Freshman Enrolled in Missouri Public Higher Education Institutions



2002-2003 FAFSA-Filers

Table 12 presents summary data on Missouri residents who submitted a FAFSA for the 2002-2003 school year. The FAFSA application cycle for the 2002-2003 academic year actually includes 18 months, from January 1, 2002 to June 30, 2003. Over this period, 210,888 Missouri residents filled out a FAFSA. For purposes of this project, however, only first-time students who have never attended college and who are considered freshmen are considered. Thus, the population can be described succinctly as "freshmen FAFSA applicants." As shown in Table 12, there were 53,807 Missouri freshmen applicants for the 2002-2003 school year. Table 12 also breaks down applications by date of submission – before and after March 31. The latter date is an important one as the Missouri Department of Higher Education (MDHE) has a March 31 application deadline for most state aid programs. Interestingly, only 43.8 percent of applicants submitted FAFSA forms in time to be eligible for 41.3 million dollars in state need-based financial aid, which is available for Missouri students who enroll in either public or private Missouri higher education institutions.

Table 12: 2002-03 Missouri Freshman FAFSA Applicants by Date of Application

		Total
	Number	Percent Column
Total	53,807	100.0%
January 1, 2002 - March 31, 2002	23,551	43.8%
April 1, 2002 - June 30, 2003	30,256	56.2%

Table 13 provides data on the demographic characteristics of freshmen FAFSA applicants. Unfortunately, demographic information is limited on the FAFSA form to gender and age of the student. Data about the race of the student are not available from the FAFSA form. Consistent with a growing gender imbalance in higher education attendance, 58.6 percent of FAFSA applicants were women.

Most freshmen applicants (68.8 percent) were less than 19 years old; however, approximately 11 percent were 30 years old or older, suggesting the importance of "non-traditional" students in the freshman applicant pool. For comparison, there were 54,510 public high school graduates in 2002. The Missouri Department of Elementary and Secondary Education does not tally private high school graduates; however, 10 percent of Missouri K-12 enrollment is in private schools (disproportionately in K-8, however). A conservative estimate, then, would put total high school graduates at roughly 58,000, which suggests that roughly two-thirds of Missouri high school graduates fill out a FAFSA.

Table 13: 2002-2003 Missouri First-Time Freshman FAFSA Applicants by Gender and Age

Gender	Number	Percent
Male	21,652	40.2%
Female	31,538	58.6%
Missing Data	617	1.1%
Total	53,807	100.0%
Age		
19 or under	37,003	68.8%
20 to 24	7,085	13.2%
25 to 29	3,856	7.2%
30 to 34	2,261	4.2%
35 to 39	1,554	2.9%
40 and over	2,024	3.8%
Missing Data	24	0.0%
Total	53,807	100.0%
Missouri Public High School Graduates, 2002	54,510	---

The level of the parent's education is a strong predictor of K-12 education performance as well as higher education attendance. Table 14 provides information about the education level of the mother and father of students who completed a FAFSA. Nearly four percent (3.7) of applicants report parents' education less than high school and a large proportion come from families in which neither the father nor mother completed college. First-generation college students account for 42 percent of the FAFSA filers. If we exclude the "other/unknown" category, first generation college students comprise 52 percent of FAFSA filers who report parents' education.

Table 14: 2002-2003 Missouri Freshman FAFSA Applicants by Education of Parent.

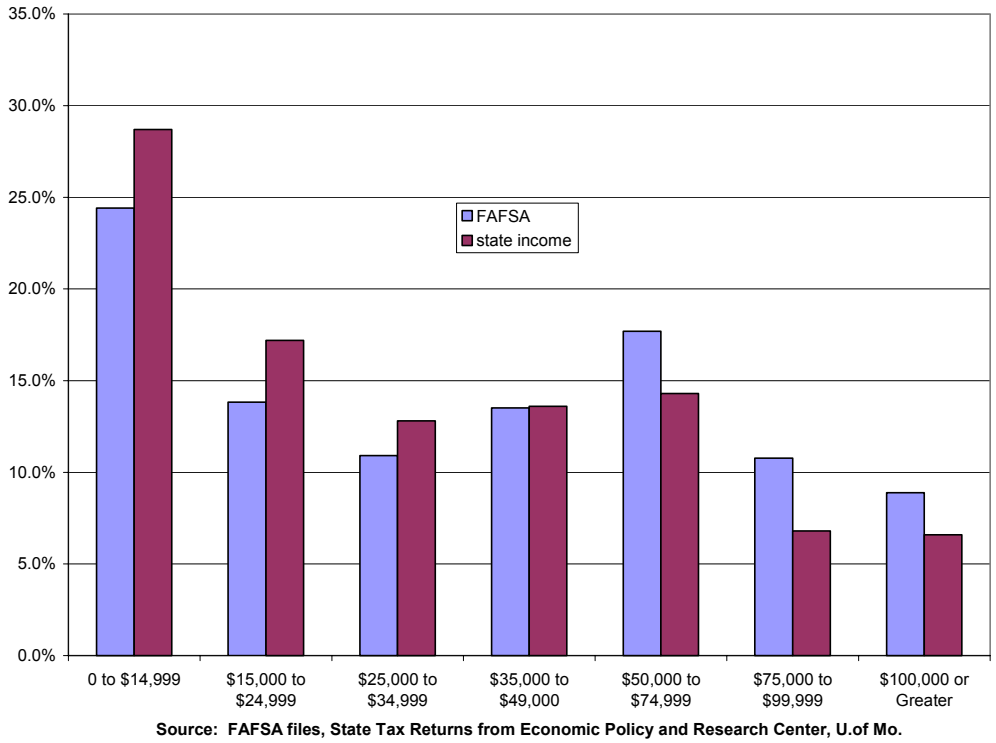
Level of Parent's Education	Number	Percent
Mother		
Middle School.	4,561	8.5%
High School	25,803	48.0%
College and/or Beyond	17,307	32.2%
Other/Unknown	3,821	7.1%
Missing Data	2,315	4.3%
Total	53,807	100.0%
Father		
Middle School.	4,743	8.8%
High School	24,816	46.1%
College and/or Beyond	15,376	28.6%
Other/Unknown	6,282	11.7%
Missing Data	2,590	4.8%
Total	53,807	100.0%
Highest Level of One Parent		
Middle School.	2,010	3.7%
High School	20,697	38.5%
College and/or Beyond	21,411	39.8%
Other/Unknown	7,669	14.3%
Missing Data	2,020	3.8%
Total	53,807	100.0%

Table 15 and Figure 14 reports 2002 Adjusted Gross Income (AGI) for FAFSA filers and all Missouri taxpayers. Generally FAFSA filers are from families with incomes higher than the typical Missouri family. For example, 58 percent of FAFSA filers report AGIs of $50,000 or less. This compares to 72 percent of all Missouri households. Eight percent of FAFSA filers report a family AGI of $100,000 or more as compared to just 7 percent of Missouri households overall. Tables 16 and 17 report statistics on expected family contribution (EFC) for the FAFSA filers. Roughly half (51 percent) have an EFC of less than $3,000

Table 15: 2002-2003 Missouri Freshmen FAFSA Applicants and All Taxpayers by Family Adjusted Gross Income.

Adjusted Gross Income	2002-2003 FAFSA Filers			2002 Missouri Tax- Filers Cumulative Percent
	Number	Percent	Cumulative Percent	
$0.00 to $14,999	12,063	22.4%	22.4%	28.7%
$15,000 to $24,999	6,830	12.7%	35.1%	45.9%
$25,000 to $34,999	5,390	10.0%	45.1%	58.7%
$35,000 to $49,999	6,671	12.4%	57.5%	72.3%
$50,000 to $74,999	8,740	16.2%	73.8%	86.6%
$75,000 to $99,999	5,319	9.9%	83.7%	93.4%
$100,000 or Greater	4,387	8.2%	91.8%	100.0%
Missing Data	4,407	8.2%	100.0%	
Total	53,807	100.0%		

Figure 14: 2002-2003 Missouri Freshmen FAFSA Applicants and All Missouri Taxpayers by Adjusted Gross Income



Source: FAFSA files, State Tax Returns from Economic Policy and Research Center, U.of Mo.

Table 16: 2002-2003 Missouri Freshmen FAFSA Applicants by Expected Family Contribution

Expected Family Contribution	Number	Percent	Cumulative Percent
Equal 0	14,023	26.1%	26.1%
$1 to $1,499	7,172	13.3%	39.4%
$1,500 to $2,999	5,144	9.6%	49.0%
$3,000 to $4,499	4,104	7.6%	56.6%
$4,500 to $5,999	3,252	6.0%	62.6%
$6,000 to $7,499	2,507	4.7%	67.3%
$7,500 to $8,999	2,009	3.7%	71.0%
$9,000 to $10,499	1,718	3.2%	74.2%
$10,500 to $15,499	4,197	7.8%	82.0%
$15,500 to $20,499	2,593	4.8%	86.8%
$20,500 to $25,499	1,531	2.8%	89.7%
> = $25,500	3,245	6.0%	95.7%
Missing Data	2,312	4.3%	100.0%
Total	53,807	100.0%	

Table 17: Mean and Median Estimated Family Contribution (EFC) for 2002-2003 Missouri Freshmen FAFSA Applicants by Family Income [a]

		Total	
Median and Mean Expected Family Contribution by Income Group	Number	Median EFC	Mean EFC
$0 to $14,999	11,312	$-	$669
$15,000 to $24,999	6,521	$218	$1,389
$25,000 to $34,999	5,193	$1,536	$2,552
$35,000 to $49,999	6,460	$3,437	$4,454
$50,000 to $74,999	8,521	$7,728	$9,270
$75,000 to $99,999	5,209	$15,071	$16,157

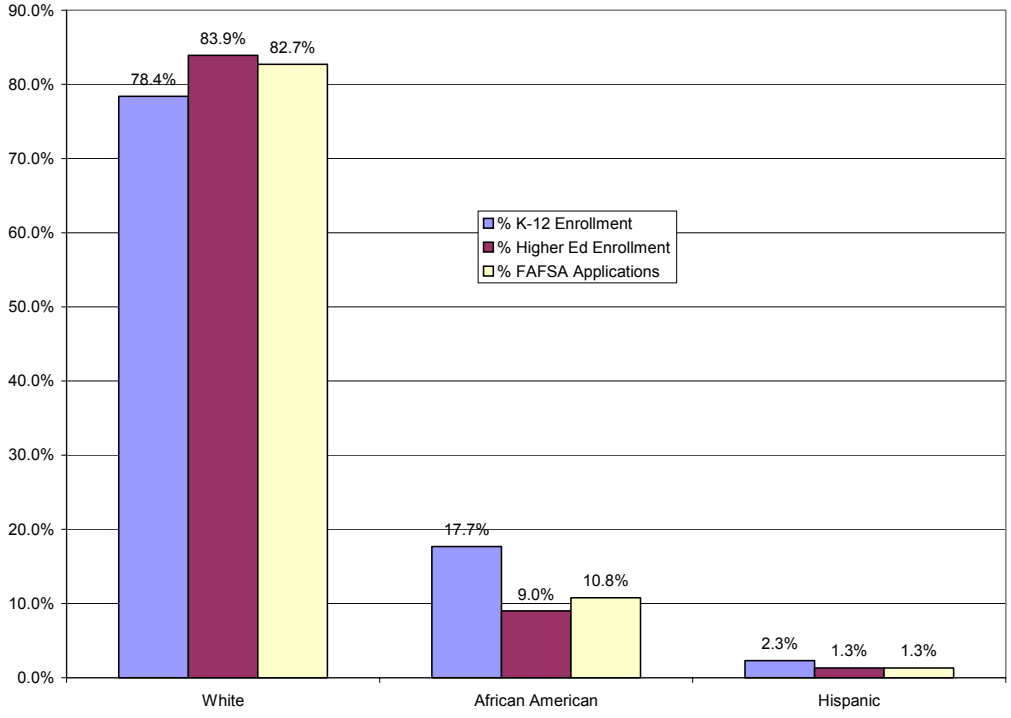
[a] Expected family contribution calculations presented only for family incomes under $100,000 (n=43,216). Not included are income groups of $100,000 or more or income missing.

Missouri Public Higher Education Freshmen

This section provides an analysis of 26,523 Missouri freshmen enrolled in a public two- or four-year college or university in fall 2002 to examine which types of

students are more likely to complete a FAFSA application. Figure 15 presents the distribution of K-12 and public higher education enrollments, and FAFSA submissions by race and Hispanic ethnicity in Missouri. White students account for 78.4 percent of K-12 enrollments, 83.9 percent of public two- and four-year enrollments, and 82.7 percent of FAFSA submissions. African American students account for 17.7 percent of K-12 enrollments, but only 9.0 percent of public higher education enrollments and 10.8 percent of FAFSA submissions. The Hispanic share of the Missouri student population is considerably smaller but displays a similar imbalance. Hispanic students account for 2.3 percent of K-12 enrollments, but only 1.3 of higher education enrollments and 1.3 percent of FAFSA submissions.

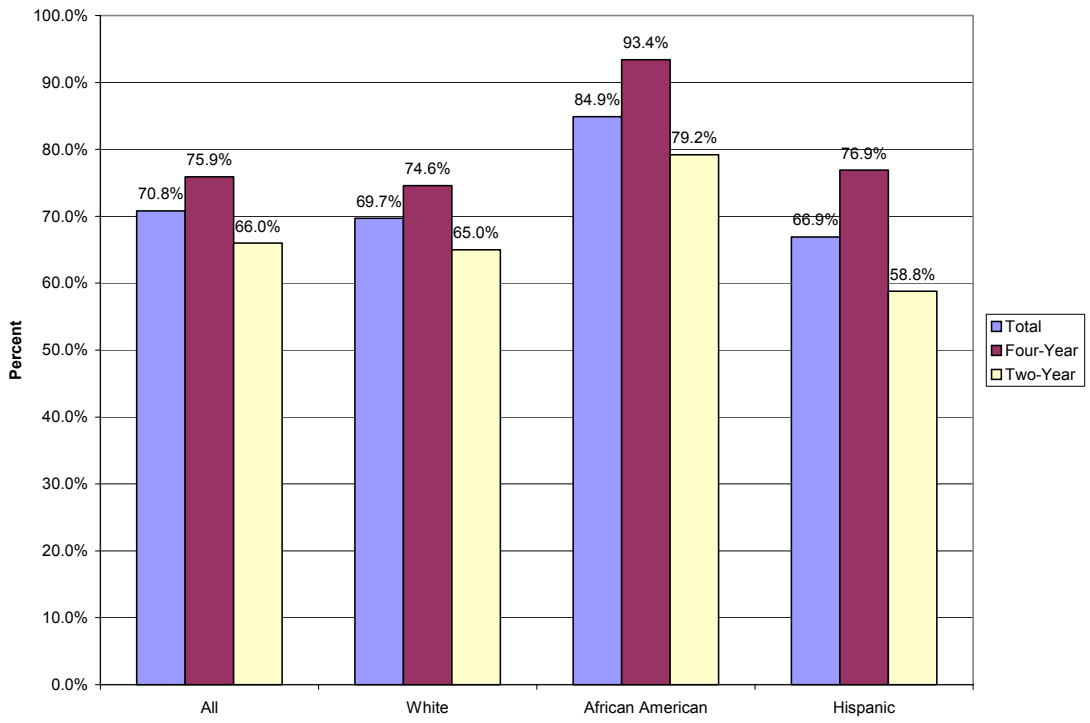
Figure 15: K-12 and Higher Education Enrollment and FAFSA Submissions by Race: Freshmen Who Graduated from a Missouri High School and Enrolled in Missouri Public Two- or Four-Year Institution, Academic Year 2002-2003[a]



[a] Information on race was obtained from EMSAS Fall Enrollment Records.

Figure 16 reports the FAFSA submission rates by two- and four-year colleges. African American students have the highest application rates at either level of institution, followed by Hispanics and then White students.

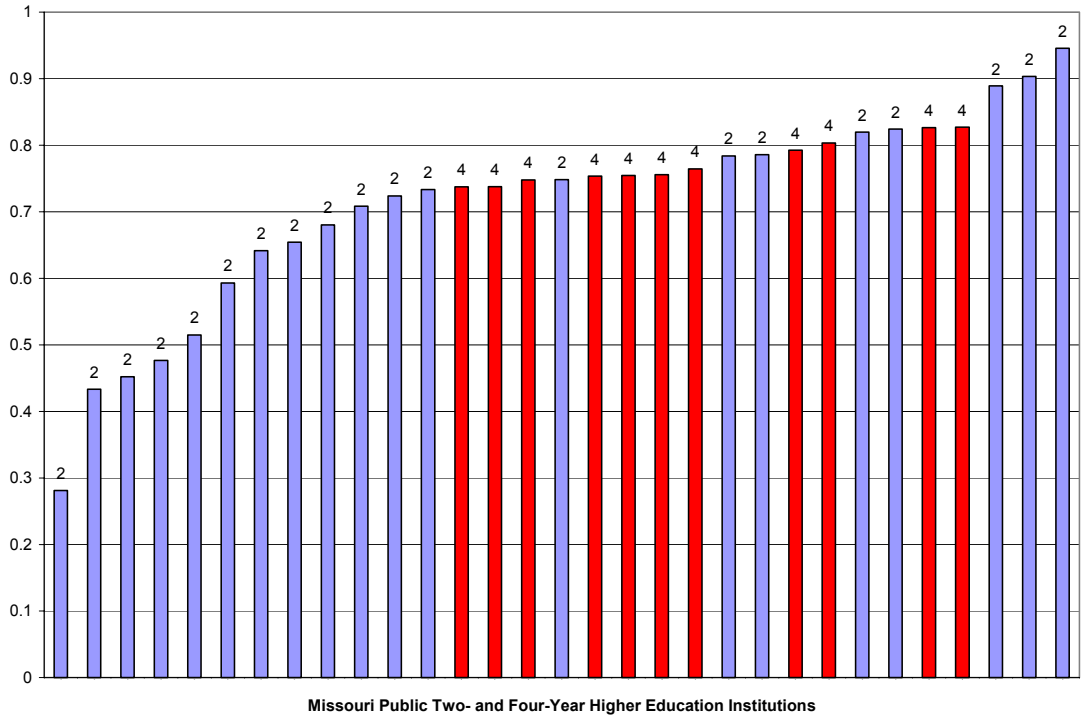
Figure 16: FAFSA Submission Rates: Percent of College Freshmen Who Filled Out a FAFSA, Academic Year 2002-2003[a]



[a] Missouri high school graduates enrolled in a Missouri public two or four-year higher education institution. Along with the racial groups shown, "All" includes Asian and Pacific Islanders, Native Americans, non-resident aliens who graduated from Missouri high schools, and individuals for whom race could not be identified. In combination these groups total roughly 5 percent of higher education undergraduates.

Figure 17 shows considerable variation across institutions in the rate at which students fill out a FAFSA. While on average the rate is higher for four-year institutions, three two-year institutions have the highest rates in the state. Since there is also considerable variation in the racial composition of students attending higher education institutions in the state, it is possible that the racial differences observed in Figure 16 reflect different institutional attendance patterns by race.

Figure 17: First-Time Freshmen FAFSA Completion Rates by Institution: Missouri Public Two- and Four-Year Institutions [a]

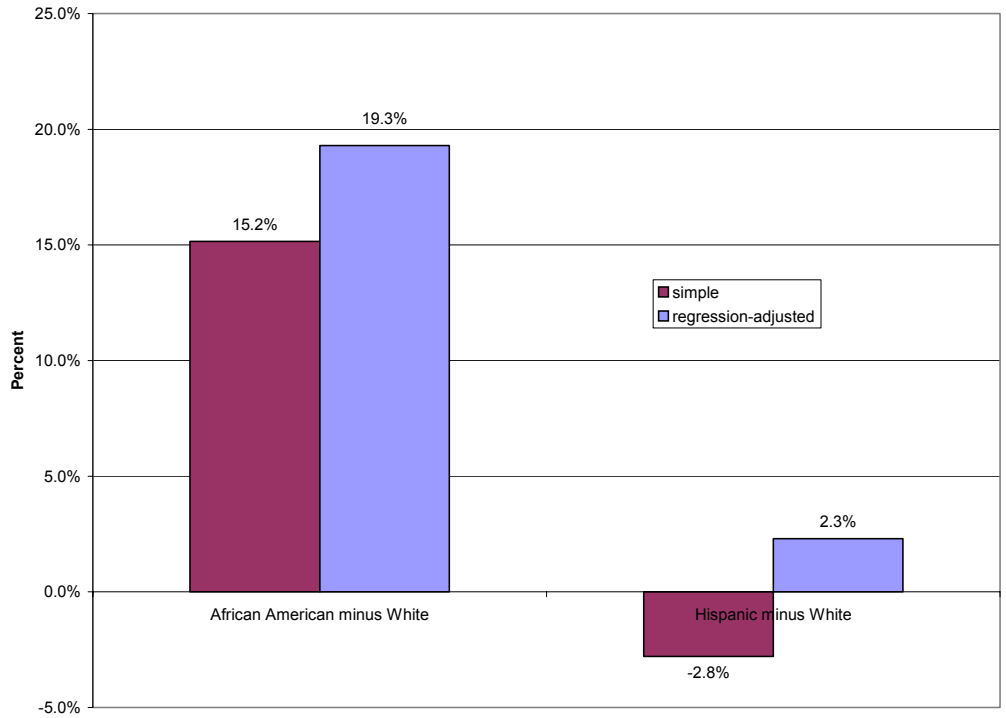


[a] The two-year institutions with the smallest proportions of first-time freshmen completing the FAFSA generally serve affluent areas of Missouri. By contrast, the two-year institutions with the highest proportions of first-time freshmen completing the FAFSA generally serve less affluent areas of Missouri and less affluent students.

Figure 18 presents regression-adjusted estimates of white and minority FAFSA submission rates. The estimates in the bars, labeled "simple", are differences between FAFSA application rates between White students and African American or Hispanic students. The FAFSA completion rate among all African American students is 15.2% higher than for white students, but is 2.8 percent lower for all Hispanic students when compared with white students.

The bars labeled "regression -adjusted" are the minority-white gaps after adjustment for students' ACT scores, class standing, and enrolled institution. In fact, the "regression-adjusted" estimates can be interpreted as average within-institution minority-white gaps for students of similar academic preparation. The within-institution African American-white gap increases to 19.3 percent, while the within-institution Hispanic-white gap becomes a positive 2.3 percent. (All of the gaps reported in Figure 18 are statistically significant. See Appendix E.)

Figure 18: Simple and Regression-Adjusted Measures of the Difference in FAFSA Submission Rates between White and Minority Students



Appendix A
Longitudinal File Construction

Construction of the longitudinal data file began by extracting the data records of 6,375 first-time freshmen from the Enhanced Missouri Student Achievement Study (EMSAS). These freshmen graduated from Missouri high schools and were enrolled in the six participating public four-year institutions in fall 1997. The EMSAS Fall Enrollment data provide a snapshot of Missouri public higher education enrollments taken on a census date during the fall semester of each academic year and contain information on student demographics and academic performance in high school. The EMSAS Fall Enrollment data was the source for the race, gender, date of birth, high school attended, high school percentile rank, and ACT variables. Once the cohort of students was selected, a file was constructed that contained a record for each student for all six academic years (1997-1998 through 2002-2003) covered in this study, for a total of 38,250 records. The original intent was to conduct the longitudinal analysis on a semester by semester basis instead of a year by year basis. However, not all of the participating institutions were able to provide student financial aid data by semester.

A unique challenge was encountered when attempting to collect detailed student level financial aid data from the participating institutions. When the initial contact was made with the participating institutions, it was learned that the data systems used to collect and maintain the student financial aid data at each of the institutions are different and very complex. Institutions had hundreds of different types of aid programs. Classifying each of these aid programs as "need" or "non-need" for each of the institutions would have been very complex, time-consuming, and prone to error. It was decided that rather than trying to learn each institution's data system, the data would be requested in a common file format. The DHE-14 survey was the instrument chosen for the file layout (see Table A1). The DHE-14 is a survey that is collected by the MDHE each year from all Missouri public two- and four-year higher education institutions. The survey asks for aggregate head counts of all financial aid recipients and the dollars awarded to students through federal, state, and institutional financial aid programs. The programs listed on the survey became the categories of aid that the researchers requested from the participating institutions, making available detailed data necessary for the analysis. Another benefit to using the categories from the survey was that the participating institutions were already familiar with the categories' definitions, reducing the amount of programming work required by the institutions to fulfill the data request. (See Tables A1.1, A1.2, and A1.3 for the record layout, instructions, and glossary used by participating institutions submitting student financial aid data to the MDHE for this research.)

A significant challenge of this research was managing the numerous combinations of institutional, state, and federal; need and non-need; gift, loan, work, and other financial aid. The different combinations of aid are shown in Table A2.

Another challenge that occurred was extracting family income data from the FAFSA. The MDHE receives FAFSA data every year for the purposes of administering the state need-based financial aid programs. Prior to the 2002-2003 academic year, the MDHE collected FAFSA data for an academic year from January 1 to the summer immediately before that academic year. Although the length of a complete cycle in which students may fill out a FAFSA is 18 months, staff at the MDHE did not collect FAFSA data past the first six to eight months because all of state need-based financial aid would be awarded by that time. While the majority of FAFSA applications are filed within the first six to eight months of the 18 month cycle, there are still a substantial number that are filed throughout the remainder of the cycle. It became known access could be provided for some but not all of the FAFSA applications only after the research project had begun. Since family income was such an important variable in this project, an attempt was made to get information on family income for the largest number of students possible. As a result, the family income from the first FAFSA application filed for each student was used as family income in all years. The MDHE is addressing the problem by keeping all FAFSA data for each academic year.

Academic performance and degree completion data were collected from the EMSAS Term Registration and Degree Completion files. The EMSAS Term Registration file contains information on credit hour completion and grade point average for the summer, fall, and spring semesters each academic year. The EMSAS Degree Completion file contains information on degrees conferred over the course of an academic year.

Information on student employment during and after college came from the Unemployment Insurance (UI) data. The UI data is individual level data on earnings reported each quarter by employers for jobs covered by Unemployment Insurance. One issue that was encountered when analyzing student employment while in college was the fact that the calendar year quarters by which the UI earnings data is reported do not exactly correspond to semesters. This made it difficult to differentiate between a student's work while in school and work during breaks. In order to minimize the inclusion of work while not actually attending classes, earnings were only included and reported for the fourth and first quarters. Earnings during these quarters include work during Christmas break, but do not include any summer employment.

Table A1: Federal, State, and Institutional Financial Aid Collected from Participating Institutions: Definitions for Gift, Loan, and Work Aid and Need and Non-Need Aid

Field Name	L=Loan G=Gift W=Work O=Other	M=Merit(Non-Need) N=Need O=Other	F=Federal I=Institutional S=State O=Other
Supplemental Educational Opportunity Grant (SEOG)	G	N	F
Perkins	L	N	F
College Work Study (CWS)	W	N	F
Pell Grants	G	N	F
Subsidized Stafford Student Loans	L	N	F
Unsubsidized Stafford Student Loans	L	M	F
Parent Loans for Undergraduate Students (PLUS)	L	M	F
Direct Subsidized Student Loans	L	N	F
Direct Unsubsidized Student Loans	L	M	F
Direct PLUS Student Loans	L	M	F
Health Profession Loans (HPL)	L	N	F
Higher Education Assistance Loans (HEAL)	L	N	F
Nursing Loans	L	N	F
Other Financial Aid Awarded from Federal Sources	O	O	F
Need-Based Scholarships, Fellowships, and Grants	G	N	I
Merit-Based Scholarships, Fellowships, and Grants	G	M	I
Athletic Scholarships, Fellowships, and Grants	G	M	I
Tuition and Fee Remissions or Waivers	G	M	I
Other Scholarships, Fellowships, and Grants	G	O	I
Need-Based Loans	L	N	I
Non-need-Based Loans	L	M	I
Need-Based Employment	W	N	I
Non-need-Based Employment	W	M	I
Charles Gallagher Student Financial Assistance Program	G	N	S
Higher Education Academic Scholarships (Bright Flight)	G	M	S
Advantage Missouri	L	N	S
Missouri College Guarantee	G	N	S
A-Plus	G	M	S
Paul Douglas Teacher scholarships	G	M	S
Employee's Child Survivor Grant	G	M	S
Marguerite Ross Barnett Scholarship	G	N	S
Teacher Education Scholarships	G	M	S
Robert Byrd Scholarships	G	M	S
Vocational Rehabilitation	G	M	S
Professional/Practical Nursing Student Loans	L	M	S
Other	O	O	S
Scholarships, Fellowships, Grants, and Loans	O	O	O

Table A1.1 Institutional student financial aid data file layout used by participating institutions to report data to the Missouri Department of Higher Education for this research project

This file layout describes the institutional financial aid data the Missouri Department of Higher Education (DHE) is requesting from institutions that wish to participate in its Lumina Foundation for Education grant entitled, "Access and Affordability: Patterns of Higher Education Attendance and Performance for Cohorts of ACT-Tested Missouri High School Graduates". Institutional financial aid data is an important component of the financial aid that college students receive and potentially affects their decisions to attend post-secondary education as well as their ability to succeed during college and beyond. Collecting institutional financial aid data will give the DHE a greater ability to assess the impact that student financial aid has on students' access to and affordability of Missouri's system of higher education.

The file that the DHE is requesting is a student level file of financial aid from fiscal year (FY) 1997 (academic year (AY) 1996-1997) to FY03 (AY 2002-2003). This file layout is based on the DHE-14, an institutional survey of student financial aid collected annually by the DHE. The rows of the DHE-14 survey are the data elements requested in this file layout, in this case at the student level. So, the same definitions for the financial aid categories should be used in compiling the student level data as are used in completing the DHE-14 survey (see the attached instruction pages for the DHE-14). All of the financial aid categories in this file layout have been allotted a field length of five and should contain the dollar amount of the award for students who received the award and should be left blank for students who did not receive an award.

DHE-14 Line Number	*Start Position*	*End Position*	*Field Length*	*Field Name*	*Field Content* [a]
	1	9	9	*Social Security Number*	
	10	15	6	*FICE College Code*	
	16	19	4	*Calendar Year*	*yyyy*
	20	20	1	*Semester*	*F=Fall* *S=Spring* *U=Summer*
Section A: Financial Aid Awarded from Federal Sources					
10	21	25	5	*Supplemental Educational Opportunity Grant (SEOG)*	*00000 to 99999* *or blank*

DHE-14 Line Number	*Start Position*	*End Position*	*Field Length*	*Field Name*	*Field Content* [a]
20	26	30	5	*Perkins*	*00000 to 99999 or blank*
30	31	35	5	*College Work Study (CWS)*	*00000 to 99999* or blank
40	36	40	5	*Pell Grants*	*00000 to 99999 or blank*
50	41	45	5	*Subsidized Stafford Student Loans*	*00000 to 99999* or blank
60	46	50	5	*Unsubsidized Stafford Student Loans*	*00000 to 99999 or blank*
70	51	55	5	*Parent Loans for Undergraduate Students (PLUS)*	*00000 to 99999* or blank
72	56	60	5	*Direct Subsidized Student Loans*	*00000 to 99999* or blank
74	61	65	5	*Direct Unsubsidized Student Loans*	*00000 to 99999* or blank
76	66	70	5	*Direct PLUS Student Loans*	*00000 to 99999* or blank
90	71	75	5	*Health Profession Loans (HPL)*	*00000 to 99999* or blank
100	76	80	5	*Higher Education Assistance Loans (HEAL)*	*00000 to 99999* or blank
110	81	85	5	*Nursing Loans*	*00000 to 99999* or blank
120	86	90	5	*Other Financial Aid Awarded from Federal Sources*	*00000 to 99999* or blank
Section B: Financial Aid Awarded from Institutional Sources					

DHE-14 Line Number	*Start Position*	*End Position*	*Field Length*	*Field Name*	*Field Content* [a]
140	91	95	5	*Need Based Scholarships, Fellowships, and Grants*	*00000 to 99999* or blank
150	96	100	5	*Merit Based Scholarships, Fellowships, and Grants*	*00000 to 99999* or blank
160	101	105	5	*Athletic Scholarships, Fellowships, and Grants*	*00000 to 99999* or blank
170	106	110	5	*Tuition and Fee Remissions or Waivers*	*00000 to 99999* or blank
180	111	115	5	*Other Scholarships, Fellowships, and Grants*	*00000 to 99999* or blank
190	116	120	5	*Need Based Loans*	*00000 to 99999* or blank
200	121	125	5	*Non-need Based Loans*	*00000 to 99999* or blank
210	126	130	5	*Need Based Employment*	*00000 to 99999* or blank
220	131	135	5	*Non-need Based Employment*	*00000 to 99999* or blank
Section C: Financial Aid Awarded from State of Missouri Sources					
230	136	140	5	*Charles Gallagher Student Financial Assistance Program*	*00000 to 99999* or blank
240	141	145	5	*Higher Education Academic Scholarships (Bright Flight)*	*00000 to 99999* or blank
241	146	150	5	*Advantage Missouri*	*00000 to 99999* or blank
242	151	155	5	*Missouri College Guarantee*	*00000 to 99999* or blank
243	156	160	5	*A-Plus*	*00000 to 99999* or blank
250	161	165	5	*Paul Douglas Teacher scholarships*	*00000 to 99999* or blank
260	166	170	5	*Employee's Child Survivor Grant*	*00000 to 99999* or blank

DHE-14 Line Number	*Start Position*	*End Position*	*Field Length*	*Field Name*	*Field Content* [a]
261	171	175	5	*Marguerite Ross Barnett Scholarship*	*00000 to 99999* or blank
270	176	180	5	*Teacher Education Scholarships*	*00000 to 99999* or blank
280	181	185	5	*Robert Byrd Scholarships*	*00000 to 99999* or blank
281	186	190	5	*Vocational Rehabilitation*	*00000 to 99999* or blank
290	191	195	5	*Professional/Practical Nursing Student Loans*	*00000 to 99999* or blank
300	196	200	5	*Other*	*00000 to 99999* or blank
Section D: All Other Financial Aid Awarded from Non-Institutional, Non-state of Missouri, and Non-Federal Sources					
320	201	205	5	*Scholarships, Fellowships, Grants, and Loans*	*00000 to 99999 or blank*

Table A1.2 Instructions and definitions for student financial aid awarded and reported on the MDHE -14 survey

SECTION A: STUDENT FINANCIAL AID AWARDED FROM FEDERAL SOURCES

1. This form requests the headcount and dollar amount of student financial aid awarded by level of student and by type of aid. Graduate students (columns C and D) include first professional students. A graduate student is one who holds a bachelor's or first professional degree, or equivalent, and is taking courses at the postbaccalaureate level. These students may or may not be enrolled in graduate programs.

2. Lines 10 through 30: Campus-based Programs. All information on these lines can be taken directly from the federal Fiscal Operations Report for the award year ending on the previous June 30th. Include in the totals all institutional matching funds for these programs.

3. Line 40: Pell Grants. This information can come directly from the most recent Institutional Payment Summary for the most recent award year ending the previous June 30.

4. Line 50: Subsidized Stafford Student Loans (SSL). Include all loans that are certified under SSL regulations. Include all loans for the amount certified for which funds have been disbursed. Do not include non-disbursed loan amounts.

5. Line 60: Unsubsidized Stafford Student Loans. Include all loans that are certified under unsubsidized regulations. Include all loans for the amount certified for which funds have been disbursed. Do not include non-disbursed loan amounts.

6. Line 70: PLUS Loans. Include all loans that are certified under PLUS regulations. Include all loans for the amount certified. Do not include non-disbursed loan amounts.

7. Line 72: Direct Subsidized Student Loans. Include all loans that are certified under the Federal Direct Subsidized Student Loan Program regulations. Include all loans for the amount certified for which funds have been disbursed. Do not include non-disbursed loan amounts.

8. Line 74: Direct Unsubsidized Student Loans. Include all loans that are certified under the Federal Direct Unsubsidized Student Loan Program regulations. Include all loans for the amount certified for which funds have been disbursed. Do not include non-disbursed loan amounts.

9. Line 76: Direct PLUS Student Loans. Include all loans that are certified under the Federal Direct PLUS Student Loan Program regulations. Include all loans for the amount certified for which funds have been disbursed. Do not include non-disbursed loan amounts.

10. Line 80: SLS Loans. The SLS program was eliminated by the 1993 Omnibus Budget Reconciliation Act (OBRA); therefore, institutions should not report any loan data on this line. The columns have been blanked out so that data cannot be reported. All institutions should skip this line.

11. Line 90: Health Profession Loans (HPL). Include all loans that are certified under HPL regulations. Include all loans for the amount certified for which funds have been disbursed. Also include in the totals all institutional matching funds. Do not include non-disbursed loan amounts.

12. Line 100: Health Education Assistance Loans (HEAL). Include all loans that are certified under HEAL regulations. Include all loans for the amount certified for which funds have been disbursed. Do not include non-disbursed loan amounts.

13. Line 110: Nursing Loans. Include all loans that have been disbursed under nursing loan regulations. Also include in the totals all institutional matching funds. Do not include non-disbursed loan amounts.

14. Line 120: Other. Include all other grants, scholarships, and loans from federal sources not included in lines 10-110 above. Do not include veteran's benefits.

SECTION B: FINANCIAL AID AWARDED FROM INSTITUTIONAL SOURCES

17. Lines 140 through 180: Scholarships, Fellowships and Grants. This section collects information about gift aid based on varying criteria. Classify these awards in terms of the basis on which the award was originally given. An award can be reported only once. An institution must determine that appropriate category.

Line 140: Based on Need. Funds awarded to a student on the basis of his or her demonstrated financial need for the purpose or meeting postsecondary education expenses.

Line 150: Based on Merit. Funds awarded to a student on the basis of academic performance, talent, co-curricular or extracurricular activities. Do not include athletic awards.

Line 160: Athletic. Funds awarded on the basis of athletic ability.

Line 170: Tuition and Fee Remissions or Waivers. Amount of tuition and fee remissions and waivers made to students, faculty, and/or other institutional staff and staff dependents for reasons other than demonstrated financial need, academic performance, talent, co-curricular or extracurricular activities or athletic ability. Remissions and waivers can be based on many student characteristics including: geographic origin, familial relationship to alumni or employees, Missouri state taxes paid, and employment by the institution (including graduate assistantships).

Line 180: Other. Include funds that are not awarded on the basis of need, merit, or athletic ability not included in lines 140 through 160.

18. Lines 190 and 200: Loans. Include need and non-need based loans from institutional sources. Do not include short-term loans on lines 190 or 200. A short-term loan is any institutional loan that the student must repay before graduation or leaving school.

Line 190: Based on Need. Funds are awarded to a student on the basis of his or her demonstrated financial need for the purpose of meeting postsecondary education expenses.

Line 200: Non-need Based. Funds awarded to a student on the basis of other than the student's demonstrated financial need.

19. Lines 210 and 220: Employment. Include need and non-need based employment from institutional sources.

Line 210: Based on Need: Institutionally-funded employment awarded to a student on the basis of his or her demonstrated financial need for the purpose or meeting postsecondary education expenses.

Line 220: Non-need Based: Institutionally funded employment awarded to a student on the basis of other than the student's demonstrated financial need.

SECTION C: FINANCIAL AID AWARDED FROM STATE OF MISSOURI SOURCES

20. Lines 230 through 300: Missouri Grants, Scholarships, and Loans. This section collects information about financial aid awarded from programs administered by the state of Missouri based on varying criteria.

Line 230: Charles Gallagher Student Financial Assistance Program, formerly the Missouri Student Grant Program. Include all grants awarded under the student grant program regulations. This information may be obtained from the final grant payment summary mailed to all institutions in August by the Coordinating Board for Higher Education staff.

Line 240: Missouri Higher Education Academic Scholarship Program. Include all scholarships awarded under the academic scholarship program regulations. This program is also known as "Bright Flight." This information may be obtained from the final scholarship payment summary mailed to all institutions in August by the Coordinating Board for Higher Education staff.

Line 241: Advantage Missouri Program. Include all loan funds awarded under the Advantage Missouri Program regulations. This information may be obtained from the final scholarship payment summary mailed to all institutions in August by the Coordinating Board for Higher Education staff.

Line 242: Missouri College Guarantee Program. Include all scholarships awarded under the Missouri College Guarantee Program regulations. This information may be obtained from the final scholarship payment summary mailed to all institutions in August by the Coordinating Board for Higher Education staff.

Line 243: A-Plus. Include all scholarships awarded under the A-Plus Program regulations administered by the Department of Elementary and Secondary Education.

Line 250: Paul Douglas Teacher Scholarship Program. This program is no longer funded.

Line 260: Employee's Child Survivor Grant Program. Include all grants awarded under the survivor grant program regulations administered by the Coordinating Board for Higher Education staff.

Line 261: Marguerite Ross Barnett Scholarship Program. Include all scholarships awarded under the Marguerite Ross Barnett Memorial Scholarship Program regulations. This information may be obtained from the final scholarship payment summary mailed to all institutions in August by the Coordinating Board for Higher Education staff.

Line 270: Missouri Teacher Education Scholarship Program. Include all scholarships awarded under the teacher education scholarship program regulations administered by the

Department of Elementary and Secondary Education. Also include in the totals all institutional matching funds.

Line 280: Robert Byrd Honors Scholarship Program. Include all scholarships awarded under the Byrd Scholarship Program regulations administered by the Department of Elementary and Secondary Education.

Line 281: Missouri Vocational Rehabilitation. Include all funds awarded under the Missouri Vocational Rehabilitation Program regulations administered by the Department of Elementary and Secondary Education.

Line 290: Professional and Practical Nursing Student Loan Program. Include all loans that are certified under Missouri's nursing loan program administered by the Department of Health. Include all loans for the amount certified for which funds have been disbursed. Do not include non-disbursed loan amounts.

Line 300: Other. Include all other grants, scholarships, and loans awarded from state of Missouri sources not included in lines 230-290 above.

SECTION D: ALL OTHER FINANCIAL AID AWARDED FROM NON-INSTITUTIONAL, NON-STATE OF MISSOURI, OR NON-FEDERAL SOURCES

21. Line 320: Non-institutional/Non-state of Missouri/Non-federal Sources. Report here information about what traditionally has been considered "outside" awards. Included here are scholarships from all private organizations and from states other than Missouri.

Table A1.3 Glossary of terms that may be useful when completing the DHE-14 survey

COLLEGE WORK STUDY PROGRAM: (Higher Education ACT of 1965, as amended, Title IV, Part C, Public Laws 89-329, 92-318, et al; 42 USC 2751-2756b.) A federal program designed to stimulate and promote the part-time employment of students with demonstrated financial need in eligible institutions of higher education who need earnings from employment to finance their course of study. This program provides grants to institutions for partial reimbursement of wages paid to students.

FAMILY INCOME: The adjusted gross annual income (as defined by the Internal Revenue Code) for a dependent student's parents except where the student is classified as "independent," according to established federal financial aid regulations.

GRADUATE STUDENT: A student who holds a bachelor's or first professional degree, or equivalent, and is taking courses at the postbaccalaureate level. These students may or may not be enrolled in graduate programs.

GRANT: As related to student financial aid, a sum of money permanently bestowed for a particular purpose and not requiring repayment or service/work. Contrast with loan. Included as special kinds of grants are scholarships and fellowships.

HIGHER EDUCATION ASSISTANCE LOAN (HEAL): Federally insured loans to students attending eligible health profession schools. Sect. 730 of the Public Health Service Act requires HEAL schools to maintain records on student loans granted under this program.

LOAN: As relates to student financial aid, a sum of money temporarily bestowed and requiring repayment, usually with interest. Contrast with grant. Excluded are short-term loans (those that are to be repaid within a year).

NEED-BASED EDUCATIONAL LOAN: See NEED-BASED FINANCIAL AID

NEED-BASED FINANCIAL AID: Funds awarded to a student on the basis of his or her demonstrated financial need for the purpose of meeting postsecondary education expenses. Categories of need-based financial aid are:

Need-based Grant or Scholarship: Aid that has no requirement for repayment or employment.

Need-based Educational Loan: Aid that requires dollar repayment and/or provides for full or partial loan forgiveness under specific conditions, e.g., for service in a specific career or for medical reasons.

NEED-BASED GRANTS OR SCHOLARSHIPS: See NEED-BASED FINANCIAL AID

NON-NEED-BASED FINANCIAL AID: Funds awarded in recognition of a student's special abilities, talents, interests or participation in certain programs without regard to financial need. However, non-need-based awards, prizes, or other assistance may be used for or applied toward meeting or reducing a student's calculated financial need. Scholarships and fellowships are frequently used terms for non-need-based financial aid.

PELL GRANTS: (Higher Education Act of 1965, Title IV, Part A, Subpart 1, as Amended.) A source of federal student financial aid that provides eligible undergraduate students with need-based grants to help them defray the cost of postsecondary education. (Note: Grant limitations are subject to change with revised legislation.)

PERKINS LOAN PROGRAM: Formerly National Direct Student Loans. (Higher Education Act of 1965, Title IV, Part E, as amended, Public Laws 89-329, 92-318, et al; 20 USC 1087AA-1087HH.) Provides low interest federal loans to eligible postsecondary students (undergraduate, graduate, or professional students) with demonstrated financial need to help meet educational expenses.

SCHOLARSHIPS AND FELLOWSHIPS: Expenditures given in the form of outright grants and trainee stipends to individuals enrolled in formal course work, either for credit or noncredit. See CUBA 412-413.

STAFFORD LOANS: (Formerly Guaranteed Student Loans) (Higher Education Act of 1965, Title IV-B, as amended, Public Law 89-329; 20 USC 1071.) Provides student loans, either subsidized or unsubsidized, for educational expenses from eligible lenders to vocational, undergraduate, and graduate students at eligible postsecondary institutions.

STUDENT EMPLOYMENT: Monies given to students for rendering services to the institution.

STUDENT HEADCOUNT: A simple unduplicated tally of all students for the specified reporting period.

SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANTS (SEOG): (Public Law 92-318, as amended, Public Law 94-482, Higher Education Act of 1965, Title IV; Subpart A -2; 20 U.S. Code, sect. 1070b-1976.) Federal grants that provide financial assistance to undergraduate students with demonstrated financial need to enable them to attend college. The grants are made directly to institutions of higher education, which select students for the awards. (Note: Grant limitations are subject to change with revised legislation.)

UNDERGRADUATE: A student enrolled in a four-year or five-year bachelor's degree program, in an associate's degree program, or in a vocational or technical program below the baccalaureate.

UNMET FINANCIAL NEED: The amount determined by subtracting the amount of financial aid awarded from the calculated financial need.

VETERANS ADMINISTRATION EDUCATION BENEFITS (VA): Those benefits that are paid for student assistance at approved postsecondary education institutions for three types of beneficiaries: surviving wives and children, discharged veterans, and active armed service employees in special programs.

WORK-STUDY: Monies made available to students as payment for services rendered as required by the institution for financial assistance.

Table A2: Combinations of Financial Aid Packages in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions

Aid Package	Number	Frequency Percent	Cumulative Number	Cumulative Frequency Percent
No Aid	1,497	23.5	1,497	23.5
I-gift merit	767	12.0	2,264	35.5
I-gift merit,S-gift merit	421	6.6	2,685	42.1
F-gift need,F-loan need	267	4.2	2,952	46.3
F-loan need	247	3.9	3,199	50.2
F-loan merit	245	3.8	3,444	54.0
F-loan merit,I-gift merit	231	3.6	3,675	57.7
F-gift need	146	2.3	3,821	59.9
F-loan merit,F-loan need	141	2.2	3,962	62.2
F-gift need,I-gift merit	116	1.8	4,078	64.0
I-gift nmother	101	1.6	4,179	65.6
F-loan need,I-gift merit	93	1.5	4,272	67.0
F-gift need,F-loan need,I-gift merit	88	1.4	4,360	68.4
F-loan merit,I-gift merit,S-gift merit	77	1.2	4,437	69.6
F-gift need,F-loan merit,F-loan need	66	1.0	4,503	70.6
I-gift merit,I-loan merit,S-gift merit	66	1.0	4,569	71.7
F-loan merit,F-loan need,I-gift merit	61	1.0	4,630	72.6
F-gift need,F-loan need,F-work need	59	0.9	4,689	73.6
S-gift merit	59	0.9	4,748	74.5
F-gift need,F-loan need,F-work need,I-gift merit	57	0.9	4,805	75.4
F-loan need,I-gift need	56	0.9	4,861	76.3
F-gift need,I-gift merit,S-gift merit	55	0.9	4,916	77.1
I-gift merit,I-gift need	45	0.7	4,961	77.8
F-gift need,F-loan need,F-work need,I-gift need	44	0.7	5,005	78.5
F-gift need,F-loan need,I-gift need	42	0.7	5,047	79.2
I-work merit	38	0.6	5,085	79.8
F-gift need,F-loan need,I-gift nmother	30	0.5	5,115	80.2
F-loan merit,I-gift nmother	29	0.5	5,144	80.7
F-loan need,F-work need,I-gift need	29	0.5	5,173	81.2
F-loan need,I-gift merit,I-gift need	28	0.4	5,201	81.6
F-gift need,I-gift need	27	0.4	5,228	82.0
F-gift need,I-gift merit,I-gift need	26	0.4	5,254	82.4
I-gift merit,I-work merit	26	0.4	5,280	82.8
I-gift need	26	0.4	5,306	83.2
F-gift need,F-loan need,F-work need,I-work merit	25	0.4	5,331	83.6
F-gift need,F-loan need,I-gift merit,I-gift need	25	0.4	5,356	84.0
F-loan merit,F-loan need,F-work need,I-gift merit	25	0.4	5,381	84.4
I-gift merit,I-gift need,S-gift merit	23	0.4	5,404	84.8
F-loan merit,F-loan need,F-work need,I-gift need	22	0.4	5,426	85.1
F-loan merit,I-gift merit,I-loan merit,S-gift merit	22	0.4	5,448	85.5
F-gift need,F-loan merit,F-loan need,I-gift merit	21	0.3	5,469	85.8
F-gift need,F-loan need,I-gift merit,S-gift merit	21	0.3	5,490	86.1

Aid Package	Number	Frequency Percent	Cumulative Number	Cumulative Frequency Percent
F-loan merit,F-loan need,I-gift merit,I-gift need	20	0.3	5,510	86.4
F-loan merit,F-loan need,I-gift need	20	0.3	5,530	86.8
I-gift merit,I-gift nmother,S-gift merit	20	0.3	5,550	87.1
F-gift need,F-loan need,F-work need,I-gift merit,I-gift need	19	0.3	5,569	87.4
I-gift merit,I-gift nmother	19	0.3	5,588	87.7
F-gift need,I-gift nmother	18	0.3	5,606	87.9
F-loan merit,F-loan need,F-work need	18	0.3	5,624	88.2
F-gift need,F-loan need,F-work need,I-gift merit,I-work merit	16	0.3	5,640	88.5
F-loan need,I-gift merit,S-gift merit	16	0.3	5,656	88.7
F-loan merit,F-loan need,I-gift merit,S-gift merit	15	0.2	5,671	89.0
F-gift need,F-loan need,F-work need,I-gift merit,S-gift merit	14	0.2	5,685	89.2
F-loan merit,F-loan need,F-work need,I-gift merit,I-gift need	14	0.2	5,699	89.4
F-gift need,F-loan need,F-work need,I-gift nmother	13	0.2	5,712	89.6
F-loan need,S-gift merit	13	0.2	5,725	89.8
F-gift need,F-loan merit,F-loan need,F-work need	12	0.2	5,737	90.0
F-loan merit,I-gift merit,I-gift need	12	0.2	5,749	90.2
F-loan merit,S-gift merit	12	0.2	5,761	90.4
F-loan need,F-work need,I-gift merit	12	0.2	5,773	90.6
F-gift need,F-loan merit,F-loan need,F-work need,I-gift merit	11	0.2	5,784	90.7
F-gift need,F-loan merit,F-loan need,F-work need,I-gift need	11	0.2	5,795	90.9
F-loan need,F-work need	10	0.2	5,805	91.1
F-loan need,I-gift nmother	10	0.2	5,815	91.2
I-gift merit,I-work merit,S-gift merit	10	0.2	5,825	91.4
F-gift need,F-work need	9	0.1	5,834	91.5
F-gift need,F-work need,I-gift merit	9	0.1	5,843	91.7
F-gift need,F-work need,I-gift merit,I-work merit	9	0.1	5,852	91.8
F-gift need,S-gift merit	9	0.1	5,861	91.9
F-loan need,F-work need,I-gift merit,I-gift need	9	0.1	5,870	92.1
F-gift need,F-loan need,I-work merit	8	0.1	5,878	92.2
F-gift need,F-work need,I-gift merit,S-gift merit	8	0.1	5,886	92.3
F-loan merit,I-work merit	8	0.1	5,894	92.5
F-loan need,I-work merit	8	0.1	5,902	92.6
F-work need,I-gift merit	8	0.1	5,910	92.7
F-gift need,F-loan merit,F-loan need,F-work need,I-gift merit,I-gift need	7	0.1	5,917	92.8
F-gift need,F-loan merit,F-loan need,F-work need,I-gift merit,S-gift merit	7	0.1	5,924	92.9
F-gift need,F-loan merit,F-loan need,I-gift need	7	0.1	5,931	93.0
F-lgother nmother,I-gift merit	7	0.1	5,938	93.2
F-loan merit,F-loan need,I-work merit	7	0.1	5,945	93.3
F-loan merit,F-loan need,S-gift merit	7	0.1	5,952	93.4
F-loan merit,F-work need,I-gift merit	7	0.1	5,959	93.5
F-loan merit,I-gift merit,I-gift need,S-gift merit	7	0.1	5,966	93.6

Aid Package	Number	Frequency Percent	Cumulative Number	Cumulative Frequency Percent
F-work need,I-gift merit,I-gift need	7	0.1	5,973	93.7
F-gift need,F-loan need,I-gift merit,I-loan merit	6	0.1	5,979	93.8
F-gift need,F-loan need,I-gift merit,I-loan merit,S-gift merit	6	0.1	5,985	93.9
F-gift need,F-loan need,I-gift merit,S-gift need	6	0.1	5,991	94.0
F-gift need,F-loan need,S-gift merit	6	0.1	5,997	94.1
F-gift need,F-work need,I-work merit	6	0.1	6,003	94.2
F-gift need,I-gift merit,I-gift nmother	6	0.1	6,009	94.3
F-loan merit,I-gift need	6	0.1	6,015	94.4
F-loan need,I-gift merit,I-work merit	6	0.1	6,021	94.5
F-work need,I-gift merit,S-gift merit	6	0.1	6,027	94.5
F-gift need,F-loan merit,F-loan need,I-gift merit,I-loan merit,S-gift merit	5	0.1	6,032	94.6
F-gift need,F-loan merit,I-gift merit,S-gift merit	5	0.1	6,037	94.7
F-gift need,F-work need,I-gift merit,I-gift need	5	0.1	6,042	94.8
F-gift need,F-work need,I-gift need	5	0.1	6,047	94.9
F-loan merit,F-loan need,F-work need,I-gift merit,I-work merit	5	0.1	6,052	94.9
F-loan merit,F-loan need,I-gift merit,I-loan merit,S-gift merit	5	0.1	6,057	95.0
F-loan merit,F-loan need,I-gift need,I-gift nmother	5	0.1	6,062	95.1
F-loan merit,F-work need,I-gift need	5	0.1	6,067	95.2
F-loan merit,I-gift merit,I-loan merit	5	0.1	6,072	95.3
F-work need	5	0.1	6,077	95.3
F-work need,I-gift need	5	0.1	6,082	95.4
I-gift merit,I-loan merit	5	0.1	6,087	95.5
F-gift need,F-loan merit,F-loan need,I-gift merit,I-gift need	4	0.1	6,091	95.6
F-gift need,F-loan need,I-gift merit,I-gift need,S-gift merit	4	0.1	6,095	95.6
F-gift need,F-loan need,I-gift merit,I-work merit	4	0.1	6,099	95.7
F-gift need,I-gift merit,I-gift need,S-gift merit	4	0.1	6,103	95.7
F-gift need,I-gift merit,I-loan merit,S-gift merit	4	0.1	6,107	95.8
F-gift need,S-gift need	4	0.1	6,111	95.9
F-loan merit,F-loan need,F-work need,I-gift merit,I-gift need,S-gift merit	4	0.1	6,115	95.9
F-loan merit,F-loan need,F-work need,I-work merit	4	0.1	6,119	96.0
F-loan merit,F-loan need,F-work need,S-gift merit	4	0.1	6,123	96.1
F-loan merit,F-work need,I-gift merit,I-gift need	4	0.1	6,127	96.1
F-loan need,F-work need,I-gift merit,I-work merit	4	0.1	6,131	96.2
F-loan need,F-work need,I-gift merit,S-gift merit	4	0.1	6,135	96.2
F-loan need,I-gift merit,I-gift need,S-gift merit	4	0.1	6,139	96.3
F-loan need,I-gift merit,I-loan merit	4	0.1	6,143	96.4
I-gift merit,I-loan need	4	0.1	6,147	96.4
F-gift need,F-loan merit,F-loan need,F-work need,I-gift need,S-gift merit	3	0.1	6,150	96.5

Aid Package	Number	Frequency Percent	Cumulative Number	Cumulative Frequency Percent
F-gift need,F-loan merit,F-loan need,F-work need,I-gift nmother	3	0.1	6,153	96.5
F-gift need,F-loan merit,F-loan need,I-gift merit,S-gift merit	3	0.1	6,156	96.6
F-gift need,F-loan merit,F-loan need,I-work merit	3	0.1	6,159	96.6
F-gift need,F-loan merit,F-loan need,S-gift merit	3	0.1	6,162	96.7
F-gift need,F-loan merit,I-gift need	3	0.1	6,165	96.7
F-gift need,F-loan need,F-work need,I-loan need	3	0.1	6,168	96.8
F-gift need,F-loan need,I-gift need,I-loan need	3	0.1	6,171	96.8
F-gift need,F-loan need,I-loan merit	3	0.1	6,174	96.9
F-gift need,F-loan need,S-gift need	3	0.1	6,177	96.9
F-gift need,F-work need,I-gift merit,I-loan merit,S-gift merit	3	0.1	6,180	96.9
F-gift need,I-gift merit,I-gift nmother,S-gift merit	3	0.1	6,183	97.0
F-gift need,I-gift merit,I-work merit	3	0.1	6,186	97.0
F-gift need,I-gift merit,S-gift need	3	0.1	6,189	97.1
F-gift need,I-work merit	3	0.1	6,192	97.1
F-lgother nmother,I-gift merit,S-gift merit	3	0.1	6,195	97.2
F-loan merit,F-lgother nmother,I-gift merit	3	0.1	6,198	97.2
F-loan merit,F-loan need,F-work need,I-gift merit,S-gift merit	3	0.1	6,201	97.3
F-loan merit,F-loan need,I-gift merit,I-work merit	3	0.1	6,204	97.3
F-loan merit,F-work need	3	0.1	6,207	97.4
F-loan merit,F-work need,I-gift merit,S-gift merit	3	0.1	6,210	97.4
F-loan merit,I-gift merit,I-gift nmother	3	0.1	6,213	97.5
F-loan merit,I-gift merit,I-gift nmother,S-gift merit	3	0.1	6,216	97.5
F-loan need,F-work need,S-gift merit	3	0.1	6,219	97.6
F-gift need,F-lgother nmother,I-gift merit	2	0.0	6,221	97.6
F-gift need,F-loan merit,F-loan need,F-work need,I-gift merit,I-loan merit	2	0.0	6,223	97.6
F-gift need,F-loan merit,F-loan need,F-work need,I-gift merit,I-loan merit,S-gift merit	2	0.0	6,225	97.7
F-gift need,F-loan merit,F-loan need,F-work need,I-gift need,I-gift nmother	2	0.0	6,227	97.7
F-gift need,F-loan merit,F-loan need,I-gift merit,I-loan merit	2	0.0	6,229	97.7
F-gift need,F-loan merit,F-work need,I-gift merit	2	0.0	6,231	97.7
F-gift need,F-loan merit,I-gift merit,I-gift need	2	0.0	6,233	97.8
F-gift need,F-loan need,F-work need,I-gift merit,I-gift need,S-gift merit	2	0.0	6,235	97.8
F-gift need,F-loan need,F-work need,I-gift merit,I-loan merit	2	0.0	6,237	97.8
F-gift need,F-loan need,F-work need,S-gift merit	2	0.0	6,239	97.9

Aid Package	Number	Frequency Percent	Cumulative Number	Cumulative Frequency Percent
F-gift need,F-loan need,I-gift merit,I-gift need,I-gift nmother	2	0.0	6,241	97.9
F-gift need,F-loan need,I-gift need,S-gift merit	2	0.0	6,243	97.9
F-gift need,F-work need,I-gift merit,I-gift need,I-work merit	2	0.0	6,245	98.0
F-gift need,I-gift merit,I-gift need,I-work merit	2	0.0	6,247	98.0
F-loan merit,F-loan need,I-gift merit,I-gift need,S-gift merit	2	0.0	6,249	98.0
F-loan merit,F-loan need,I-gift merit,I-loan merit	2	0.0	6,251	98.1
F-loan merit,F-loan need,I-gift need,S-gift merit	2	0.0	6,253	98.1
F-loan merit,I-gift need,S-gift merit	2	0.0	6,255	98.1
F-loan merit,I-gift nmother,S-gift merit	2	0.0	6,257	98.2
F-loan need,F-work need,I-work merit	2	0.0	6,259	98.2
F-loan need,I-gift merit,I-gift nmother	2	0.0	6,261	98.2
F-loan need,I-gift need,I-gift nmother	2	0.0	6,263	98.2
F-loan need,I-loan need	2	0.0	6,265	98.3
F-loan need,S-gift need	2	0.0	6,267	98.3
F-work need,I-gift merit,I-gift need,S-gift merit	2	0.0	6,269	98.3
F-work need,I-gift merit,I-work merit	2	0.0	6,271	98.4
F-work need,I-gift merit,I-work merit,S-gift merit	2	0.0	6,273	98.4
I-loan need	2	0.0	6,275	98.4
I-work merit,S-gift merit	2	0.0	6,277	98.5
F-gift need,F-lgother nmother,I-gift merit,I-gift need	1	0.0	6,278	98.5
F-gift need,F-lgother nmother,I-gift merit,I-gift nmother,S-gift merit	1	0.0	6,279	98.5
F-gift need,F-loan merit	1	0.0	6,280	98.5
F-gift need,F-loan merit,F-loan need,F-work need,I-gift merit,I-gift need,I-work merit	1	0.0	6,281	98.5
F-gift need,F-loan merit,F-loan need,F-work need,I-gift merit,I-gift need,S-gift merit	1	0.0	6,282	98.5
F-gift need,F-loan merit,F-loan need,F-work need,I-gift merit,I-loan merit,S-gift merit,S-gift need	1	0.0	6,283	98.6
F-gift need,F-loan merit,F-loan need,F-work need,I-gift merit,I-work merit	1	0.0	6,284	98.6
F-gift need,F-loan merit,F-loan need,F-work need,I-work merit	1	0.0	6,285	98.6
F-gift need,F-loan merit,F-loan need,F-work need,S-gift need	1	0.0	6,286	98.6
F-gift need,F-loan merit,F-loan need,I-gift merit,I-gift need,S-gift merit	1	0.0	6,287	98.6
F-gift need,F-loan merit,F-loan need,I-gift merit,I-loan need	1	0.0	6,288	98.6
F-gift need,F-loan merit,F-loan need,I-gift merit,S-gift need	1	0.0	6,289	98.7
F-gift need,F-loan merit,F-loan need,I-gift need,I-gift nmother	1	0.0	6,290	98.7
F-gift need,F-loan merit,F-loan need,I-gift	1	0.0	6,291	98.7

Aid Package	Number	Frequency Percent	Cumulative Number	Cumulative Frequency Percent
need,S-gift merit				
F-gift need,F-loan merit,F-loan need,I-gift need,S-gift need	1	0.0	6,292	98.7
F-gift need,F-loan merit,F-loan need,I-gift nmother	1	0.0	6,293	98.7
F-gift need,F-loan merit,F-loan need,I-loan merit,I-loan need,S-gift merit	1	0.0	6,294	98.7
F-gift need,F-loan merit,F-loan need,I-loan need	1	0.0	6,295	98.8
F-gift need,F-loan merit,F-work need,I-gift merit,S-gift merit	1	0.0	6,296	98.8
F-gift need,F-loan merit,F-work need,I-gift nmother	1	0.0	6,297	98.8
F-gift need,F-loan merit,I-gift merit	1	0.0	6,298	98.8
F-gift need,F-loan merit,I-gift merit,I-gift need,S-gift merit	1	0.0	6,299	98.8
F-gift need,F-loan merit,I-gift merit,I-loan merit,S-gift merit	1	0.0	6,300	98.8
F-gift need,F-loan need,F-work need,I-gift merit,I-gift need,I-loan need	1	0.0	6,301	98.8
F-gift need,F-loan need,F-work need,I-gift merit,I-gift nmother	1	0.0	6,302	98.9
F-gift need,F-loan need,F-work need,I-gift merit,I-gift nmother,S-gift merit	1	0.0	6,303	98.9
F-gift need,F-loan need,F-work need,I-gift merit,I-loan merit,S-gift merit	1	0.0	6,304	98.9
F-gift need,F-loan need,F-work need,I-gift need,I-gift nmother	1	0.0	6,305	98.9
F-gift need,F-loan need,F-work need,I-gift need,I-loan need	1	0.0	6,306	98.9
F-gift need,F-loan need,F-work need,I-gift need,I-work merit	1	0.0	6,307	98.9
F-gift need,F-loan need,F-work need,I-gift need,S-gift merit	1	0.0	6,308	99.0
F-gift need,F-loan need,F-work need,I-gift need,S-gift need	1	0.0	6,309	99.0
F-gift need,F-loan need,I-gift merit,I-gift need,I-loan merit,S-gift merit	1	0.0	6,310	99.0
F-gift need,F-loan need,I-gift merit,I-gift need,I-loan need	1	0.0	6,311	99.0
F-gift need,F-loan need,I-gift merit,I-gift nmother,S-gift merit	1	0.0	6,312	99.0
F-gift need,F-loan need,I-gift merit,I-loan merit,I-loan need	1	0.0	6,313	99.0
F-gift need,F-loan need,I-gift merit,I-loan need	1	0.0	6,314	99.0
F-gift need,F-loan need,I-gift need,I-gift nmother	1	0.0	6,315	99.1
F-gift need,F-loan need,I-gift need,I-work merit	1	0.0	6,316	99.1
F-gift need,F-loan need,I-gift nmother,S-gift need	1	0.0	6,317	99.1
F-gift need,F-loan need,I-loan merit,S-gift merit	1	0.0	6,318	99.1
F-gift need,F-loan need,I-loan need,S-gift need	1	0.0	6,319	99.1

Aid Package	Number	Frequency Percent	Cumulative Number	Cumulative Frequency Percent
F-gift need,F-work need,I-gift merit,I-gift need,I-gift nmother	1	0.0	6,320	99.1
F-gift need,F-work need,I-gift merit,I-loan merit	1	0.0	6,321	99.2
F-gift need,F-work need,I-gift merit,I-work merit,S-gift need	1	0.0	6,322	99.2
F-gift need,F-work need,I-gift need,I-gift nmother	1	0.0	6,323	99.2
F-gift need,F-work need,I-gift need,I-gift nmother,S-gift merit	1	0.0	6,324	99.2
F-gift need,F-work need,I-gift need,I-work merit	1	0.0	6,325	99.2
F-gift need,F-work need,I-gift need,S-gift merit	1	0.0	6,326	99.2
F-gift need,I-gift merit,I-gift need,I-gift nmother	1	0.0	6,327	99.3
F-gift need,I-gift merit,I-gift need,I-loan need	1	0.0	6,328	99.3
F-gift need,I-gift merit,I-loan need,S-gift merit	1	0.0	6,329	99.3
F-gift need,I-gift merit,S-lgother nmother	1	0.0	6,330	99.3
F-gift need,I-gift need,S-gift merit	1	0.0	6,331	99.3
F-gift need,I-gift nmother,S-gift need	1	0.0	6,332	99.3
F-gift need,S-gift merit,S-gift need	1	0.0	6,333	99.3
F-lgother nmother,I-gift merit,I-gift need,S-gift merit	1	0.0	6,334	99.4
F-loan merit,F-loan need,F-lgother nmother,I-gift merit	1	0.0	6,335	99.4
F-loan merit,F-loan need,F-work need,I-gift merit,I-gift need,I-loan need	1	0.0	6,336	99.4
F-loan merit,F-loan need,F-work need,I-gift merit,I-loan need	1	0.0	6,337	99.4
F-loan merit,F-loan need,F-work need,I-gift need,I-gift nmother	1	0.0	6,338	99.4
F-loan merit,F-loan need,F-work need,I-gift need,I-work merit	1	0.0	6,339	99.4
F-loan merit,F-loan need,F-work need,I-gift nmother	1	0.0	6,340	99.5
F-loan merit,F-loan need,I-gift merit,I-gift need,I-gift nmother	1	0.0	6,341	99.5
F-loan merit,F-loan need,I-gift merit,I-gift need,I-gift nmother,S-gift merit	1	0.0	6,342	99.5
F-loan merit,F-loan need,I-gift merit,I-loan need	1	0.0	6,343	99.5
F-loan merit,F-loan need,I-gift merit,I-work merit,S-gift merit	1	0.0	6,344	99.5
F-loan merit,F-loan need,I-gift merit,S-gift need	1	0.0	6,345	99.5
F-loan merit,F-loan need,I-gift nmother,S-gift need	1	0.0	6,346	99.6
F-loan merit,F-loan need,I-loan merit	1	0.0	6,347	99.6
F-loan merit,F-work need,I-gift merit,I-gift need,I-gift nmother	1	0.0	6,348	99.6
F-loan merit,F-work need,I-gift merit,I-work merit	1	0.0	6,349	99.6
F-loan merit,F-work need,I-gift need,S-gift merit	1	0.0	6,350	99.6
F-loan merit,I-gift merit,I-gift need,I-work	1	0.0	6,351	99.6

Aid Package	Number	Frequency Percent	Cumulative Number	Cumulative Frequency Percent
merit,S-gift merit				
F-loan merit,I-gift merit,I-work merit	1	0.0	6,352	99.6
F-loan merit,I-gift need,I-gift nmother	1	0.0	6,353	99.7
F-loan need,F-work need,I-gift merit,I-gift need,I-loan need	1	0.0	6,354	99.7
F-loan need,F-work need,I-gift merit,I-gift need,S-gift merit	1	0.0	6,355	99.7
F-loan need,F-work need,I-gift need,I-gift nmother	1	0.0	6,356	99.7
F-loan need,F-work need,I-gift need,S-gift need	1	0.0	6,357	99.7
F-loan need,F-work need,I-gift nmother	1	0.0	6,358	99.7
F-loan need,F-work need,I-loan merit	1	0.0	6,359	99.8
F-loan need,F-work need,S-gift need	1	0.0	6,360	99.8
F-loan need,I-gift merit,I-work merit,S-gift merit	1	0.0	6,361	99.8
F-loan need,I-gift need,I-loan need	1	0.0	6,362	99.8
F-work need,I-gift merit,I-gift need,I-loan need	1	0.0	6,363	99.8
F-work need,I-gift merit,I-gift need,I-work merit	1	0.0	6,364	99.8
F-work need,I-gift merit,I-gift nmother	1	0.0	6,365	99.8
F-work need,I-gift need,I-gift nmother	1	0.0	6,366	99.9
F-work need,I-gift nmother	1	0.0	6,367	99.9
F-work need,S-gift merit	1	0.0	6,368	99.9
I-gift merit,I-gift need,I-gift nmother	1	0.0	6,369	99.9
I-gift merit,I-gift need,I-gift nmother,S-gift merit	1	0.0	6,370	99.9
I-gift merit,I-gift need,I-loan need	1	0.0	6,371	99.9
I-gift merit,I-gift nmother,I-loan need,S-gift merit	1	0.0	6,372	100.0
I-gift merit,I-loan need,S-gift merit	1	0.0	6,373	100.0
I-gift nmother,S-gift merit	1	0.0	6,374	100.0
I-loan merit	1	0.0	6,375	100.0

Appendix B

Description of Institutions

Table B1: In-State Undergraduate Full-Time Equivalent Enrollment for Participating Institutions

	Missouri Western State College	Southeast Missouri State University	University of Missouri - Columbia	University of Missouri - Kansas City	University of Missouri - Rolla	University of Missouri - St. Louis	Total
Fall 1997	3,705	5,194	13,411	3,390	2,656	7,074	35,430
Fall 1998	3,714	5,153	13,704	3,471	2,673	7,315	36,030
Fall 1999	3,757	5,168	13,776	3,646	2,637	7,356	36,340
Fall 2000	3,722	5,229	14,034	4,023	2,612	7,230	36,850
Fall 2001	3,784	5,526	14,349	4,209	2,688	7,170	37,726
Fall 2002	3,861	5,791	15,238	4,496	2,801	7,295	39,482
Fall 2003	3,657	6,064	15,957	4,566	3,010	7,217	40,471

Table B2: Index of In-State Undergraduate Full-Time Equivalent Enrollment for Participating Institutions

	Missouri Western State College	Southeast Missouri State University	University of Missouri - Columbia	University of Missouri - Kansas City	University of Missouri - Rolla	University of Missouri - St. Louis	Total
Fall 1997	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fall 1998	100.2	99.2	102.2	102.4	100.6	103.4	101.7
Fall 1999	101.4	99.5	102.7	107.6	99.3	104.0	102.6
Fall 2000	100.5	100.7	104.6	118.7	98.3	102.2	104.0
Fall 2001	102.1	106.4	107.0	124.2	101.2	101.4	106.5
Fall 2002	104.2	111.5	113.6	132.6	105.5	103.1	111.4
Fall 2003	98.7	116.8	119.0	134.7	113.3	102.0	114.2

Table B3: In-State Undergraduate Tuition and Fees, Based on 30 Credit Hours per Year, for Participating Institutions

	Missouri Western State College	Southeast Missouri State University	University of Missouri - Columbia	University of Missouri - Kansas City	University of Missouri - Rolla	University of Missouri - St. Louis
1997-1998	$2,534	$3,000	$4,279	$4,272	$4,373	$4,322
1998-1999	$2,660	$3,105	$4,438	$4,420	$4,521	$4,636
1999-2000	$2,774	$3,225	$4,580	$4,562	$4,664	$4,795
2000-2001	$3,026	$3,390	$4,726	$4,753	$4,804	$4,940
2001-2002	$3,224	$3,525	$4,887	$5,036	$4,974	$5,116
2002-2003	$4,064	$4,035	$5,552	$5,572	$5,649	$5,813
2003-2004	$4,464	$4,575	$6,558	$6,725	$6,839	$6,866

Table B4: Index of In-State Undergraduate Tuition and Fees, Based on 30 Credit Hours per Year, for Participating Institutions

	Missouri Western State College	Southeast Missouri State University	University of Missouri - Columbia	University of Missouri - Kansas City	University of Missouri - Rolla	University of Missouri - St. Louis
1997-1998	100.0	100.0	100.0	100.0	100.0	100.0
1998-1999	105.0	103.5	103.7	103.5	103.4	107.3
1999-2000	109.5	107.5	107.0	106.8	106.7	110.9
2000-2001	119.4	113.0	110.4	111.3	109.9	114.3
2001-2002	127.2	117.5	114.2	117.9	113.7	118.4
2002-2003	160.4	134.5	129.7	130.4	129.2	134.5
2003-2004	176.2	152.5	153.3	157.4	156.4	158.9

Table B5: Distribution of Family Income from the ACT for Students Who Filled Out the FAFSA and Those Who Did Not: First-Time Freshmen Enrolled in Participating Institutions

	Did Not Complete FAFSA		Completed FAFSA	
Family Income	Number	Frequency Percent	Number	Frequency Percent
< $18,000	44	2.4%	287	6.3%
$18,000-$23,999	39	2.1%	309	6.8%
$24,000-$29,999	72	3.9%	318	7.0%
$30,000-$35,999	77	4.2%	329	7.3%
$36,000-$41,999	102	5.5%	364	8.0%
$42,000-$49,999	133	7.2%	437	9.7%
$50,000-$59,999	159	8.6%	472	10.0%
$60,000-$79,999	239	13.0%	396	8.7%
$80,000-$99,999	157	8.5%	213	4.7%
>= $100,000	227	12.0%	161	3.6%
Missing	598	32.0%	1,242	27.0%
Total	1,847	100.0%	4,528	100.0%

Appendix C
Student Characteristics

Table C1: Frequency Distributions and Four-, Five-, and Six-Year Graduation Rates by Student Characteristics: First-Time Freshmen Enrolled in Participating Institutions

	Number	Frequency Percent	Percent Graduating from Original Institution in Four Years	Percent Graduating from Original Institution in Five Years	Percent Graduating from Original Institution in Six Years
Total	6,375	100.0%	20.1%	41.0%	46.4%
Gender					
Female	3,406	53.4%	24.3%	43.6%	48.8%
Male	2,969	46.6%	15.4%	38.0%	43.6%
Ethnicity					
African American, non-Hispanic	476	7.5%	11.3%	28.2%	34.5%
White, non-Hispanic	5,495	86.2%	21.1%	42.5%	47.7%
Hispanic	88	1.4%	8.0%	27.3%	30.7%
Other Race	316	5.0%	19.0%	37.7%	46.8%
ACT Composite Scores					
20 or below	1,402	22.0%	7.8%	22.4%	27.8%
21-23	1,488	23.3%	19.2%	38.5%	43.9%
24-26	1,377	21.6%	22.5%	44.3%	49.3%
27 or higher	1,943	30.5%	29.4%	56.6%	62.5%
ACT Missing	165	2.6%	3.0%	9.1%	12.7%
AGE					
17 or under	899	14.1%	19.7%	42.8%	47.5%
18-24	5,375	84.3%	20.5%	41.2%	46.8%
25-34	47	0.7%	4.3%	10.6%	12.8%
35-44	29	0.5%	3.4%	13.8%	20.7%
45-54	11	0.2%	0.0%	0.0%	0.0%
55 and over	3	0.0%	-	-	-
Age Missing	11	0.2%	0.0%	0.0%	0.0%
Adjusted Gross Income					
< $25,000	1,231	19.3%	17.0%	35.8%	41.0%
$25,000-$74,999	2,374	37.2%	21.3%	42.9%	49.3%
$75,000 or more	921	14.4%	23.0%	46.5%	53.1%
Income Missing	1,849	29.0%	19.3%	39.2%	42.9%
Dependency Status					
Dependent	4,001	62.8%	20.6%	42.9%	48.7%
Independent	527	8.3%	19.4%	33.0%	41.0%
Dependency Unknown	1,847	29.0%	19.2%	39.1%	42.9%
High School Percentile Rank					
HS % Rank 0%-49%	1,047	16.4%	5.2%	17.2%	21.7%
HS % Rank 50%-59%	537	8.4%	9.5%	26.3%	31.1%
HS % Rank 60%-69%	747	11.7%	15.7%	35.2%	40.4%
HS % Rank 70%-79%	924	14.5%	17.2%	37.7%	42.5%
HS % Rank 80%-89%	1,123	17.6%	26.4%	48.9%	55.0%
HS % Rank 90%-100%	1,655	26.0%	34.5%	63.4%	69.7%
HS % Rank Missing	342	5.4%	10.2%	24.0%	28.7%

Table C2: Linear Probability Model of Four- and Six-Year Graduation: First-Time Freshmen Enrolled in Participating Institutions

Variable	Four-Year Graduation Rate	Six-Year Graduation Rate
Intercept	-0.0776	-0.0576
Male	-0.0748***	-0.0426***
African American	-0.0402**	-0.0426*
Hispanic	-0.0965**	-0.1146**
Other Race	-0.0194	-0.0093
Age	-0.0015	-0.0026
Age Missing	-0.0746	-0.2741*
ACT Composite Score	0.0079***	0.0091***
ACT Score Missing	0.1226***	0.0816
High School Percentile Rank	0.0026***	0.0045***
High School %ile Rank Missing	0.1513***	0.2585***
Independent Student	0.0523***	0.0697***
Income ($000)	0.0003**	0.0006***
No FAFSA Records	0.0344**	0.0778***
Gift Aid Dummy Variable	0.0347***	0.0581***
Loan Aid Dummy Variable	-0.0213	0.0476***
Work Aid Dummy Variable	0.0319*	0.0640***
Other Aid Dummy Variable	0.0890***	0.1329***
Gift Aid Per Semester ($00)	-0.0002	-0.0004
Loan Aid Per Semester ($00)	-0.0012***	-0.0013***
Work Aid Per Semester ($00)	-0.0012	-0.0037***
Other Aid Per Semester ($00)	-0.0015**	-0.0027***
Missouri Western State College	-0.0895***	-0.1283***
Southeast Missouri State University	-0.0877***	-0.1099***
University of Missouri - Kansas City	-0.1878***	-0.2054***
University of Missouri - Rolla	-0.2248***	-0.0924***
University of Missouri - St. Louis	-0.1493***	-0.2024***
Sample size	6,375	6,375

Significant at 10% (*), 5% (**), and 1% (***)

Table C3: A Comparison Between First-Time Freshmen Enrolled in Participating Institutions and First-Time Freshmen Enrolled in Non-Participating Public Four-Year Institutions in Missouri

	First-Time Freshmen Enrolled in Participating Institutions		First-Time Freshmen Enrolled in Non-Participating Institutions	
	Number	Frequency Percent	Number	Frequency Percent
Total	6,375	100.0%	6,761	100.0%
Gender				
Female	3,406	53.4%	3,877	57.3%
Male	2,969	46.6%	2,884	42.7%
Ethnicity				
African American, non-Hispanic	476	7.5%	405	6.0%
White, non-Hispanic	5,495	86.2%	6,053	89.5%
Hispanic	88	1.4%	75	1.1%
Other Race	316	5.0%	228	3.4%
ACT Composite Scores				
20 or below	1,402	22.0%	2,086	30.9%
21-23	1,488	23.3%	1,705	25.2%
24-26	1,377	21.6%	1,339	19.8%
27 or higher	1,943	30.5%	1,458	21.6%
ACT Missing	165	2.6%	173	2.6%
ACT Median	-	24	-	23
AGE				
17 or under	899	14.1%	902	13.3%
18-24	5,375	84.3%	5,748	85.0%
25-34	47	0.7%	73	1.1%
35-44	29	0.5%	24	0.4%
45-54	11	0.2%	7	0.1%
55 and over	3	0.0%	3	0.0%
Age Missing	11	0.2%	4	0.1%
Age Median	-	18	-	18
Adjusted Gross Income				
< $25,000	1,231	19.3%	1,479	21.9%
$25,000-$74,999	2,374	37.2%	2,462	36.4%
$75,000 or more	921	14.4%	869	12.9%
Income Missing	1,849	29.0%	1,951	28.9%
Income Median	-	$45,828	-	$42,103
Dependency Status				
Dependent	4,001	62.8%	4,203	62.2%
Independent	527	8.3%	612	9.1%
Dependency Unknown	1,847	29.0%	1,946	28.8%
High School Percentile Rank				
HS % Rank 0%-49%	1,047	16.4%	1,310	19.4%
HS % Rank 50%-59%	537	8.4%	716	10.6%
HS % Rank 60%-69%	747	11.7%	846	12.5%
HS % Rank 70%-79%	924	14.5%	1,065	15.8%
HS % Rank 80%-89%	1,123	17.6%	1,236	18.3%
HS % Rank 90%-100%	1,655	26.0%	1,394	20.6%
HS % Rank Missing	342	5.4%	194	2.9%

Appendix D

Regressions Results for Financial Aid versus Work

Table D1: Regression Results for Estimated Effect of an Additional Dollar of Financial Aid on School Year Labor Market Earnings in Academic Year 1997-1998: First-Time Freshmen Enrolled in Participating Institutions

Dependent Variable is the sum of the fourth quarter 1997 and first quarter 1998 Unemployment Insurance (UI) Earnings

Variable	UI Earnings ($000)
Intercept	-3.3964***
Male	-0.0834
African American	-0.2795*
Hispanic	0.3069
Other Race	-0.0375
Age	0.2605***
Age Missing	3.6509***
ACT Composite Score	-0.0063
ACT Score Missing	0.9043***
High School Percentile Rank	0.0017
High School %ile Rank Missing	0.1355
Independent Student	0.1431
Income ($000)	-0.0007
No FAFSA Records	0.0756
Gift Aid Dummy Variable	-0.0671
Loan Aid Dummy Variable	0.2173**
Work Aid Dummy Variable	-0.2737
Other Aid Dummy Variable	0.1643
Gift Aid Per Semester ($00)	-0.0927***
Loan Aid Per Semester ($00)	-0.1029***
Work Aid Per Semester ($00)	-0.3873***
Other Aid Per Semester ($00)	-0.1305***
Missouri Western State College	1.6861***
Southeast Missouri State University	1.3855***
University of Missouri - Kansas City	1.8595***
University of Missouri - Rolla	-0.1533
University of Missouri - St. Louis	2.8936***
Sample size	6375

Significant at 10% (*), 5% (**), and 1% (***).

Appendix E

Regression Results: Who Fills Out a FAFSA?

The sample selected for this analysis is all undergraduate students attending a Missouri public two- or four-year higher education institution during the 2002-2003 academic year. The sample also excludes all out-of-state students; only students who graduated from a Missouri high school are included in the analysis.[12]

Sample selection criteria

- Graduate of a Missouri high school (public or private)
- Enrolled in a Missouri public higher education institution, Academic Year 2002-2003
- First-time freshman status

A variable was then coded indicating whether these students (or their parents) filled out a Free Application for Federal Student Aid (FAFSA) for academic year 2002-2003 (yes = 1). The window for filling out academic year 2002-2003 FAFSA applications is 18 months, from January 1, 2002 to June 30, 2003.

Results

Table E1 provides a more detailed multivariate statistical analysis of the student and institutional factors associated with FAFSA applications. In this table we report estimates of linear probability models:

$$Pr(FAFSA_i=1) = \beta_0 + \beta_1 S_i + \beta_2 I_j + \varepsilon_{ij} \qquad (1)$$

where FAFSA is an indicator variable taking the value one if the i-th student filled out a FAFSA, S is a vector of student characteristics, I is a vector of institutional characteristics (where institutions are indexed by j), and ε is a mean-zero disturbance.

Table E1 reports OLS estimates of variants of equation (1). The estimated coefficients in this probability model can be interpreted as the effect of a one-unit change in the variable on the probability of filling out a FAFSA. The first results in column 2 are from the model that includes only the race indicator variables. The omitted group for race in all models is white students. Thus, a particular race coefficient is interpreted as the difference in the probability of filling out a FAFSA for students of that race, relative to white students. For example, the proportion of African American students filling out the FAFSA is .152 (15.2 percent) higher than for white students, and that difference is statistically significant. Hispanic students do not have a statistically higher probability of filling out the FAFSA than white students.[13]

[12] In addition, data limitations forced us to exclude two small four-year institutions: Harris Stowe State College, an historically black university in St. Louis, and Northwest Missouri State University in Maryville, Missouri. These two institutions represent only four percent of public higher education enrollment in Missouri.

[13] "Other" includes Asian and Pacific Islanders, non-resident alien students (who graduated from a Missouri high school), and students for whom the race variable is missing.

Column 3 reports an expanded model with more student characteristics than the model in column 2, and also includes an indicator variable for whether each student is enrolled in a four-year institution. Many of the other student characteristics are associated with the probability that a student fills out a FAFSA. Each additional year of age lowers the likelihood of filling out a FAFSA application by 0.7 percentage points. Students who score higher on the ACT are more likely to file a FAFSA. Each additional ACT point raises the probability of filing a FAFSA by 0.2 percentage points. Finally, students at four-year institutions are 3.7 percent more likely to fill out a FAFSA than students at two-year institutions.

Figure 17 (page 62) shows that there is considerable variation across institutions in the rate at which students fill out a FAFSA. While on average the rate is higher for four-year institutions, three two-year institutions have the highest rates in the state. Since there is also considerable variation in the racial composition of higher education institutions in the state, it is possible that the racial differences observed in the column 2 regression reflect institutional attendance patterns. Estimates in column 4 show this is not the case. We re-estimated the probability model with institution fixed effects. By including institution fixed effects, the coefficients for the student characteristics now measure the average differences within higher education institutions, excluding any differences between institutions. Interestingly, the White-African American gap widens even further. On average, African American students within any institution are 22.4 percent more likely than white students to fill out a FAFSA. As compared to the results in column 3, the other student variables are similar in magnitude, suggesting that between institution differences are not strongly correlated with student demographics (or ACT scores).

Finally, column 5 provides estimates of the probability model for public four-year institutions only. Most estimates are similar in magnitude to the previous estimates; however, the coefficients for age and ACT score are no longer statistically significant.

Table E1: Who Fills Out a FAFSA? Linear Probability Model Estimates: Dependent Variable = 1 if student completed a FAFSA, 0 otherwise (absolute value of t-statistic in parenthesis)

	1	2	3	4	5	6
Variable	**Sample Means Two-- and Four-Year**	**Two- and Four-Year**	**Two- and Four-Year**	**Two- and Four-Year FE**	**Four-Year Only**	**Four-Year Only FE**
Dependent Variable: Filled Out FAFSA (yes=1)	0.708	0.708	0.708	0.708	0.759	0.759
White	0.839	---	---	---	---	---
African American	0.090	0.152** (15.58)	0.176** (17.86)	0.224** (20.81)	0.193** (12.97)	0.194** (12.63)
Hispanic	0.013	-0.028 (1.15)	-0.016 (0.67)	0.004 (0.16)	0.026 (0.78)	0.023 (0.68)
Other	0.057	-0.050** (4.19)	-0.039** (3.33)	0.006 (0.53)	-0.014 (0.86)	-0.014 (0.80)
Male	0.457	---	-0.076** (13.90)	-0.082** (15.14)	-0.053** (6.98)	-0.057** (7.50)
Age	19.343	---	-0.007** (11.19)	-0.008** (12.51)	-0.002 (0.77)	-0.002 (1.08)
ACT Composite	17.446	---	0.002* (2.56)	0.003** (3.96)	0.002 (1.69)	0.002* (2.26)
ACT Missing	0.199	---	-0.089** (5.37)	-0.036* (2.07)	-0.017 (0.39)	0.005 (0.12)
Four-Year	0.483	---	0.037** (5.31)	---	---	---
Institution Fixed Effects (31)	---	No	No	Yes	No	Yes
N	26,523	26,523	26,523	26,523	12,816	12,816

Significant at .05 (*), .01 (**).

References

Bettinger, Eric P. 2004. "How Financial Aid Affects Persistence in College." NBER Working Paper 10242. Cambridge, MA: National Bureau for Economic Research (January). http://www.nber.org/papers/w10242.

Cabrera, Alberto F., Jacob O. Stampen, and W. Lee Hansen. 1990. "Exploring the Effects of Ability to Pay on Persistence in College. *The Review of Higher Education*, 13 (3). pp. 303-336.

Cameron, Stephen and James. J. Heckman. 2001. "The Dynamics of Educational Attainment for Black, Hispanic, and White Males." Journal of Political Economy. Vol. 109, No. 3. pp. 455-499.

Carneiro, Pedro and James J. Heckman. 2003. "Human Capital Policy." in James Heckman and Alan Krueger (eds.) Inequality in America: What Role for Human Capital Policies. Cambridge, MA: MIT Press. pp. 77-240.

Choy, Susan. 2000. "Low-income students: Who They Are and How They Pay for Their Education. NCES. U.S. Department of Education. Washington, DC.

Choy, Susan P. 1999. "College Access and Affordability. NCES 199-108. U.S. Department of Education, Office of Educational Research and Improvement. Washington, DC.

Davis, Jerry Sheehan. 2003. The Unintended Consequences of Tuition Discounting. Indianapolis, IN: Lumina Foundation. (May). http://www.luminafoundation.org/publications/Tuitiondiscounting.pdf

Ewell, Peter T., Paula R. Schild, and Karen Paulson. 2003. Follow the Mobile Student: Can We Develop the Capacity for a Comprehensive Database to Assess Student Progression. Indianapolis, IN: Lumina Foundation. (April).

Heller, Donald E. 1997. "Student Price Response to Higher Education: An Update to Leslie and Brinkman." Journal of Higher Education. Vol. 68. No. 6 (November/December). pp. 624-659.

Heller, Donald E. 2001. "Debts and Decisions: Student Loans and Their Relationship to Graduate School and Career Choice. Indianapolis, IN: Lumina Foundation for Education.

Heller, Donald E. 2003. "Financial Aid and Student Persistence." *Policy Insights,* (October). Western Interstate Commission for Higher Education.

Heller, Donald E. 2003. Informing Public Policy: Financial Aid and Student Persistence. Boulder, CO: Western Interstate Commission for Higher Education. http://www.wiche.edu/Policy/Changing_direction/documents/FinancialAid.pdf

Horn, Laura J., Xianglei Chen, and Christopher Chapman. 2003. Getting Ready toPay for College: What Students and Their Parents Know About the Cost of College Tuition and What They Are Doing to Find Out. NCES 2003-030. U.S. Department of Education. Washington, DC.

Kamen, D.H. 1977. Legitimizing Myths and Educational Organizations: The Relationship Between Organizational Ideology and Formal Structure. *American Sociological Review* 42 (April). pp. 208-219.

Kane, Thomas J. 1999. The price of Admission: Rethinking How Americans Pay for College. Brookings.

Kane, Thomas J. 2003. "A Quasi-Experimental Estimate of the Impact of Financial Aid on College Going." Cambridge, MA: NBER Working Paper 9703 (May). http://www.nber.org/papers/w9703.

King, Jacqueline E. 2002. Crucial Choices: How Students' Financial Decisions Affect Their Academic Success. Washington, DC: American Council on Education. Center for Policy Analysis.

King, Jacqueline E. 2003. 2003 Status Report on the Pell Grant Program. Washington, DC: American Council on Education. Center for Policy Analysis.

Leslie, Larry L. and Paul T. Brinkman. 1987. "Student Price Response in Higher Education: The Student Demand Studies." Journal of Higher Education. Vol. 58. No. 2 (March/April). pp. 181-204.

Leslie, Larry L. and Paul T. Brinkman. 1988. The Economic Value of Higher Education. New York, NY: American Council on Education and Macmillan Publishing Company.

Linsenmeier, David M., Harvey S. Rosen, and Cecilia E. Rouse. 2002. "Financial Aid Packages and College Enrollment Decisions: An Econometric Case Study." Cambridge, MA: National Bureau of Economic Research. W9228. http://dsl.nber.org/papers/w9228.pdf

McPherson, Michael S. and Morton Owen Schapiro. 1998. The Student Aid Game: Meeting Need and Rewarding Talent in American Higher Education. Princeton: Princeton University Press.

McPherson, Michael S. and Morton Owen Schapiro. 2002. The Blurring Line: Between Merit and Need in Financial Aid. *Change.* March. Heldref Publications

McPherson, Michael .S. and Mary Skinner. 1986. Paying for College: A Lifetime Proposition. *The Brookings Review. pp.* 29-36.

National Center for Public Policy and Higher Education. 2002. Losing Ground: A National Status Report on the Affordability of American Higher Education. San Jose, CA.

National Center for Education Statistics. 1996. Choice. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

National Center for Education Statistics. 1998. The Digest of Education Statistics. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

National Center for Education Statistics. 2000. The Condition of Education. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

National Center for Education Statistics. 2000a. Report 2001-34. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

National Center for Education Statistics. 2001. The Digest of Education Statistics. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

National Center for Education Statistics. 2002. The Condition of Education. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

National Commission on the Cost of Higher Education. 1997. Straight Talk About College Costs and Pprices. pp. 45-47. Phoenix, AZ: The Oryx Press.

Nora, Amaury and Alberto Cabrera. 1996. The Role of Perceptions of Prejudice and Discrimination on the Adjustment of Minority Students to College. *Journal of Higher Education,* 67 (March/April). pp 119-148.

Pascarella, Ernest T., Patrick T. Terenzini, and Lee M. Wolfle. 1986. Orientation to College and Freshman Year Persistence/Withdrawal Decisions. *Journal of Higher Education*, 57(2). pp. 155-175.

Prather, James E. and C. A. Hand. 1986. Retention of Non-traditional students. U.S. Georgia. ERIC Document Number ED274296.

St. John, Edward. P., Rita J. Kirshstein, and Jay Noell. 1991. The Effects of Student Financial Aid on Persistence: A Sequential Analysis. *The Review of Higher Education*, 14(3). pp. 383-406.

Terenzini, Patrick T., Alberto F. Cabrera, and Elena M. Bernal. (in press). Swimming Against the Tide: The Poor in American Higher Education. Research Report No. 00-(in press). New York: The College Board.

The Education Resources Institute (TERI) and The Institute for Higher Education Policy. 1995. College Debt and the American Family. ERIC Document. Washington, DC (1-37).

Tinto, Vincent. 1998. Colleges as Communities: Taking Research on Student Persistence Seriously. *The Review of Higher Education* 21(2). pp. 167-177.

U.S. Department of Education. National Center for Education Statistics. 2003. What Colleges Contribute: Institutional Aid to Full-Time Undergraduates Attending 4-Year Colleges and Universities. NCES 2003-157. by Laura Horn and Katharin Peter, Project Officer: C. Dennis Carroll. Washington DC. http://nces.ed.gov/pubs2003/2003157.pdf

Van der Klaauw, Wilbert. 2002. "Estimating the Effect of Financial Aid Offers on College Enrollment: A Regression-Discontinuity Approach." International Economic Review. Vol. 43, No. 4. (November). pp. 1249-1287.

Wei, Christina Chang. and Laura Horn. 2002. Persistence and Attainment of Beginning Students with Pell Grants. NCES 2002-169. U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Wilson, S. 2001. Student Loan Repayment. Unpublished master's thesis: The University of Missouri - Columbia.